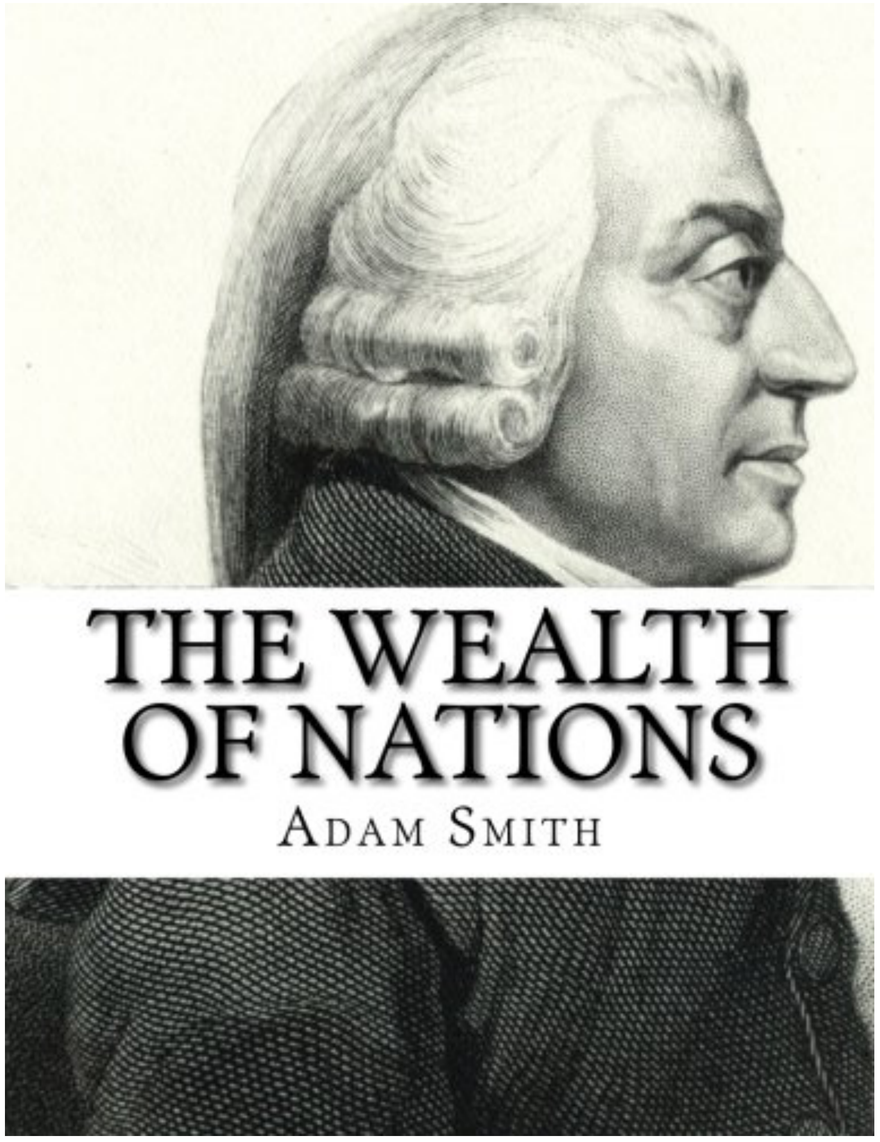
Business Studies
L1 - so you've got an idea

Jack Lang and Stewart McTavish
jal1 sam56

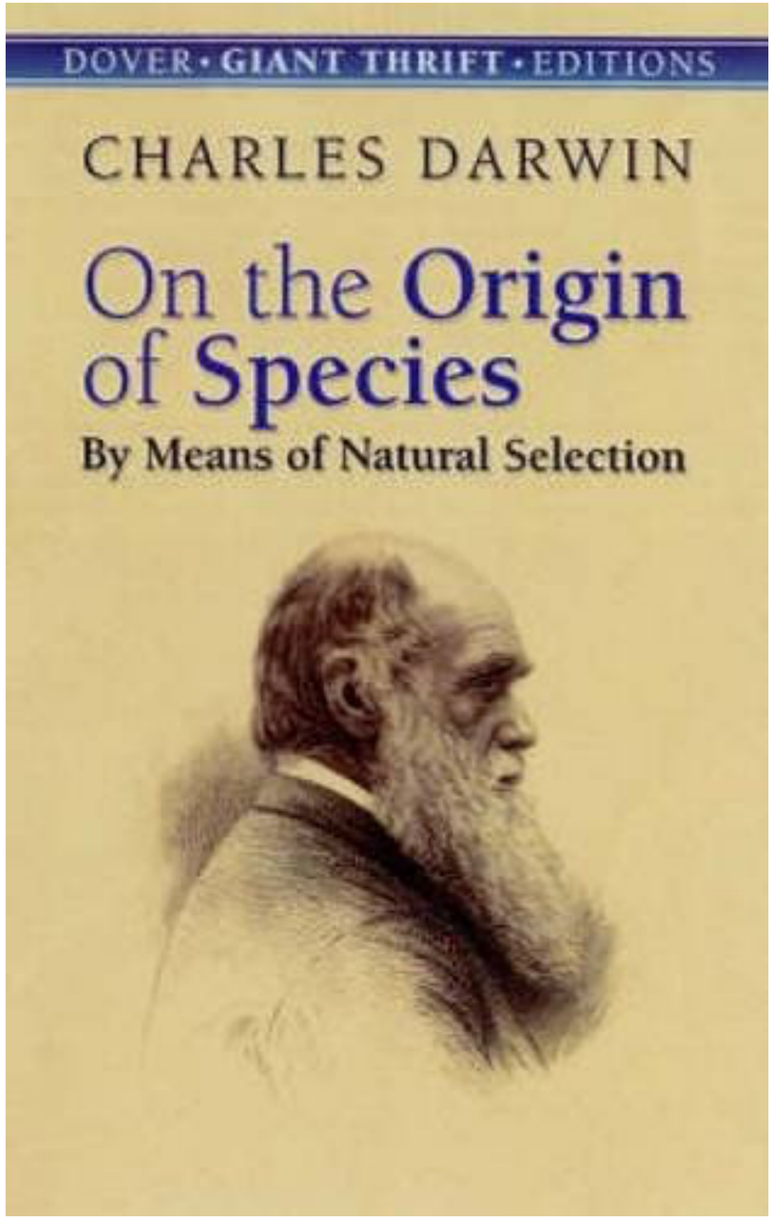
41,890,320



The annual labour of every nation is the fund which originally supplies it with all the necessaries and conveniencies of life which it annually consumes, and which consist always either in the immediate produce of that labour, or in what is purchased with that produce from other nations.

According, therefore, as this produce, or what is purchased with it, bears a greater or smaller proportion to the number of those who are to consume it, the nation will be better or worse supplied with all the necessaries and conveniences for which it has occasion.

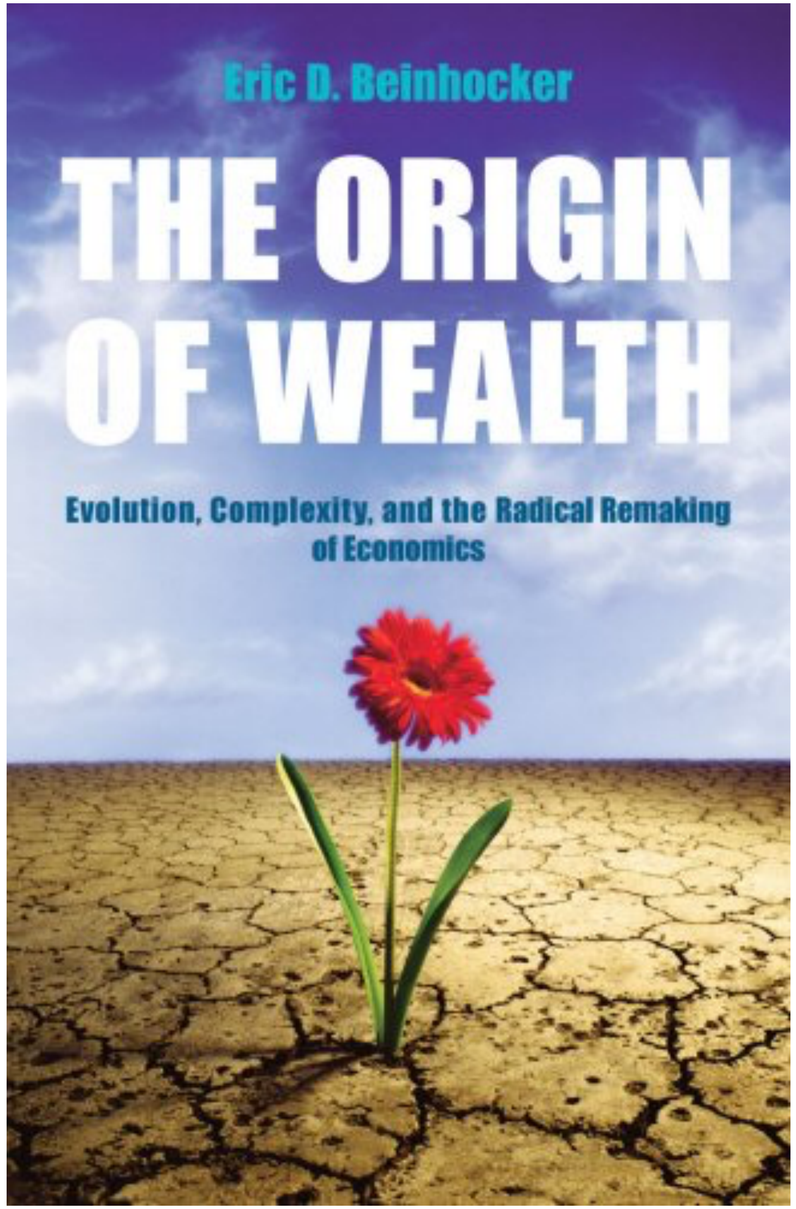
But this proportion must in every nation be regulated by two different circumstances: first, by the skill, dexterity, and judgment with which its labour is generally applied; and, secondly, by the proportion between the number of those who are employed in useful labour, and that of those who are not so employed.



Owing to this struggle, variations, however slight and from whatever cause proceeding, if they be in any degree profitable to the individuals of a species, in their infinitely complex relations to other organic beings and to their physical conditions of life, will tend to the preservation of such individuals, and will generally be inherited by the offspring.

The offspring, also, will thus have a better chance of surviving, for, of the many individuals of any species which are periodically born, but a small number can survive. I have called this principle, by which each slight variation, if useful, is preserved, by the term natural selection, in order to mark its relation to man's power of selection.

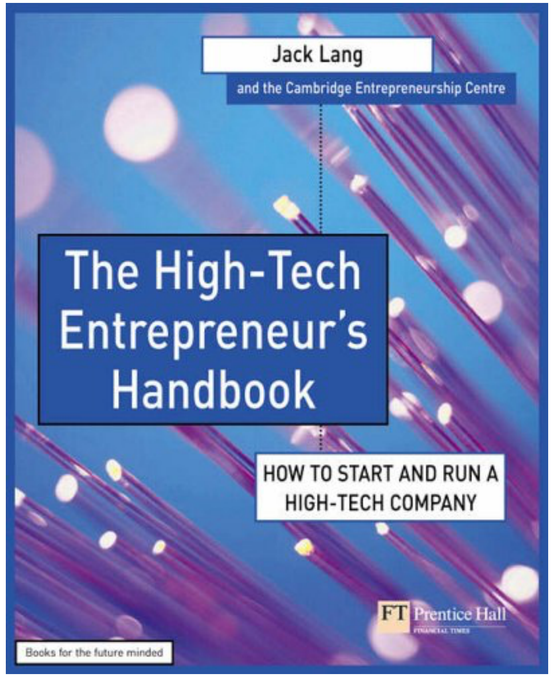
But the expression often used by Mr. Herbert Spencer, of the Survival of the Fittest, is more accurate, and is sometimes equally convenient. We have seen that man by selection can certainly produce great results, and can adapt organic beings to his own uses, through the accumulation of slight but useful variations, given to him by the hand of Nature. But Natural Selection, we shall hereafter see, is a power incessantly ready for action, and is as immeasurably superior to man's feeble efforts, as the works of Nature are to those of Art.

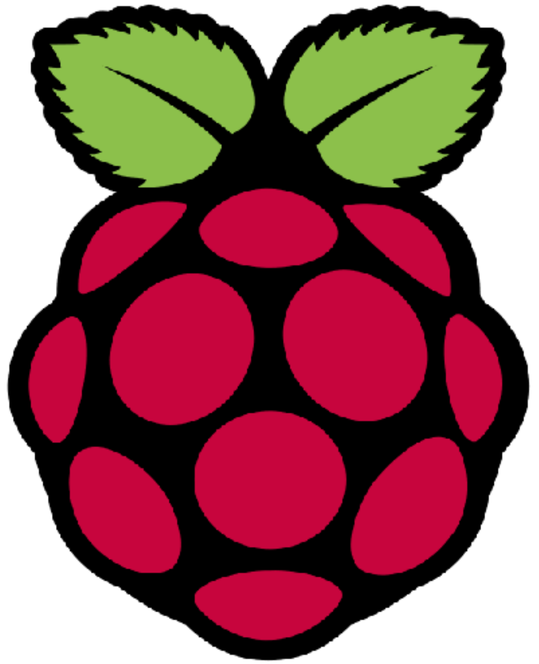


"Owing to this struggle, Perhaps one needs 'design without a designer' to explain biological evolution, but why do we need 'design without a designer' to explain the process of wealth creation in the economony when we have lot of human designers around? Aren't we the gods of out own economic creation? We are accustomed to thinking of human rationality and creativity a the primary driving forces behind wealth creation. Wealth, after all, is created by smart, innovative people coming up with new ideas for products and services and lots of hard work to make and sell the. I will argue that human rationality and creativity do play an important role in wealth creation, but not the role we usually think of. Rationality and creativity feed and shape the workings of the evolutionary algorithm in the economy, but do not replace it."

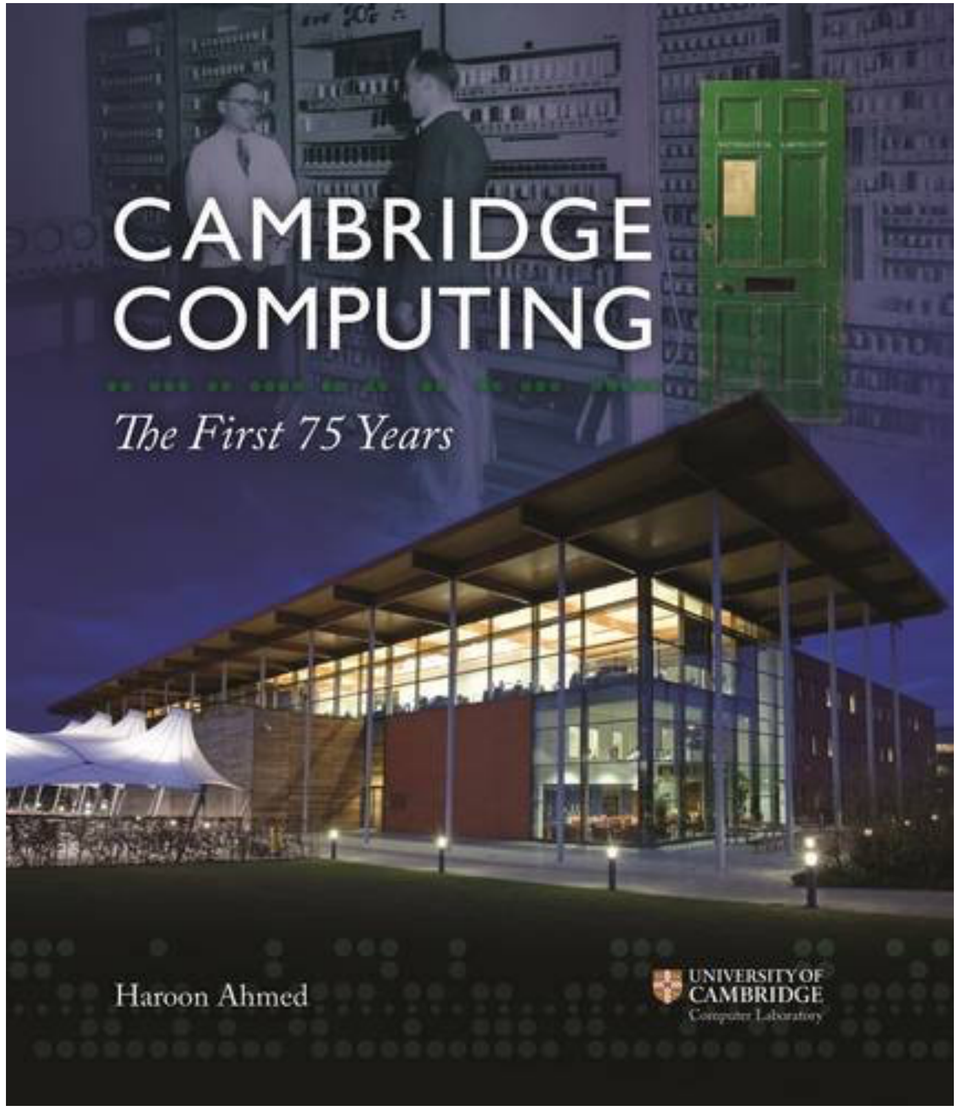
…

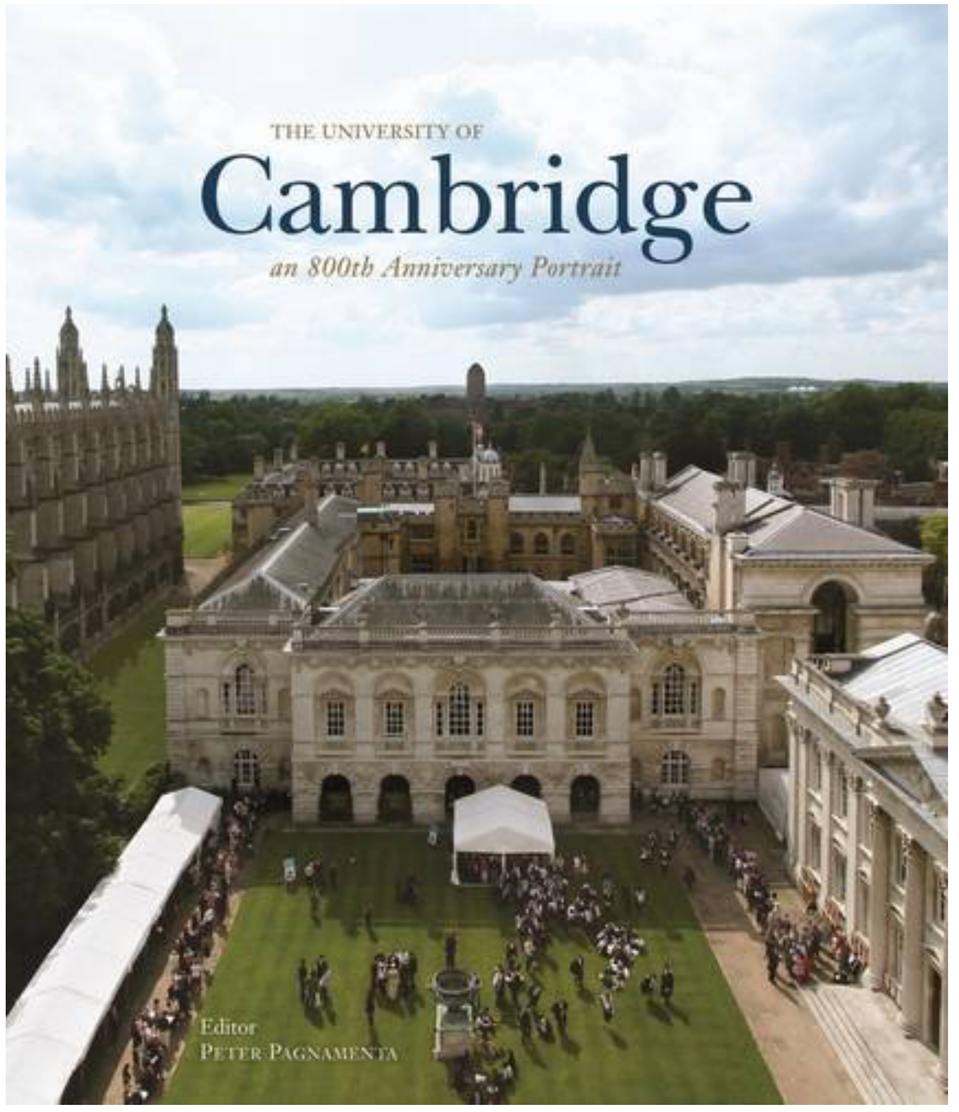
"As we will see, despite all the strengths and virtues of human rationality, prediction in a system as complex as the economy over anything but the very short term is next to impossible. We use our brains as best we can in economic decision making, but then we experiment and tinker our way into an unpredictable future, keeping an building on what works and discarding what does not. Our intentionality, rationality, and creativity do matter as a driving force in them economic but they matter as part of a larger evolutionary process."


Jack Lang
and the Cambridge Entrepreneurship Centre
The High-Tech Entrepreneur's Handbook
HOW TO START AND RUN A HIGH-TECH COMPANY
FT Prentice Hall
Books for the future minded




ideaSpace


CAMBRIDGE
COMPUTING
The First 75 Years
Haroon Ahmed
UNIVERSITY OF
CAMBRIDGE
Computer Laboratory


THE UNIVERSITY OF
Cambridge
an 800th Anniversary Portrait
Editor
PETER PAGNAMENTA

CAMBRIDGE IDEAS CHANGE THE WORLD

GENOMICS

1953
Francis Crick* and James Watson* discovered structure of DNA

1977
Fred Sanger*
First genome sequenced

1997
At a beer summit at the Panton Arms, Shankar Balasubramanian and David Klenerman devised a new approach to DNA sequencing

1998
Shankar Balasubramanian and John Berriman founded Solexa

2004
John West, new CEO of Solexa

2006
Solexa – Fast, low-cost gene sequencing. Acquired by Illumina in 2006 for $650 M

Solexa

* Nobel prize winners

MONOCLONAL ANTIBODIES

1975
George Köhler* and César Milstein* monoclonal antibodies

1986
Greg Winter invented first humanised monoclonal antibody

1989
Greg Winter and David Chiswell founded Cambridge Antibody Technology (CAT)

2003
Humira launched

2006
CAT – Developed the first fully human monoclonal antibody blockbuster drug, Humira. Acquired by AstraZeneca in 2006 for $1.3 B

Cambridge Antibody Technology

COMPUTING

1800s
Charles Babbage
Difference Engine

1937
Alan Turing
Theoretical computing machine

1946
Maurice Wilkes
EDSAC

1978–98
Hermann Hauser and Chris Curry
Acorn Computers

1978–86
Nigel Searle and Clive Sinclair
Sinclair Research

1990–
Robin Saxby and Warren East
ARM

2011
ARM – World's leading semiconductor IP supplier at the heart of more than 20 B digital electronic products. Market cap $12 B

ARM

SOFTWARE

1700s
Thomas Bayes**
Bayes Theorem

**Bayes matriculated at the University of Edinburgh

1996
Mike Lynch co-founded Autonomy

Bayes Theorem in neon in Autonomy's office in Cambridge

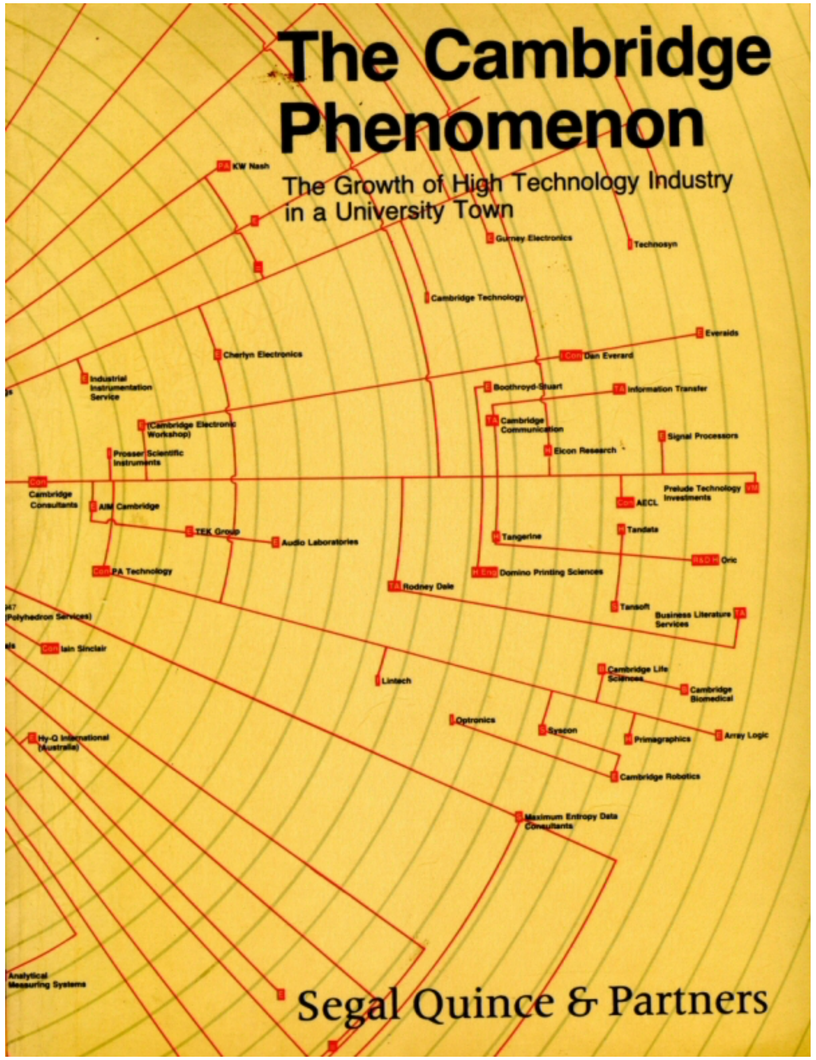
May 2007
Autonomy floated video search company Blinkx.

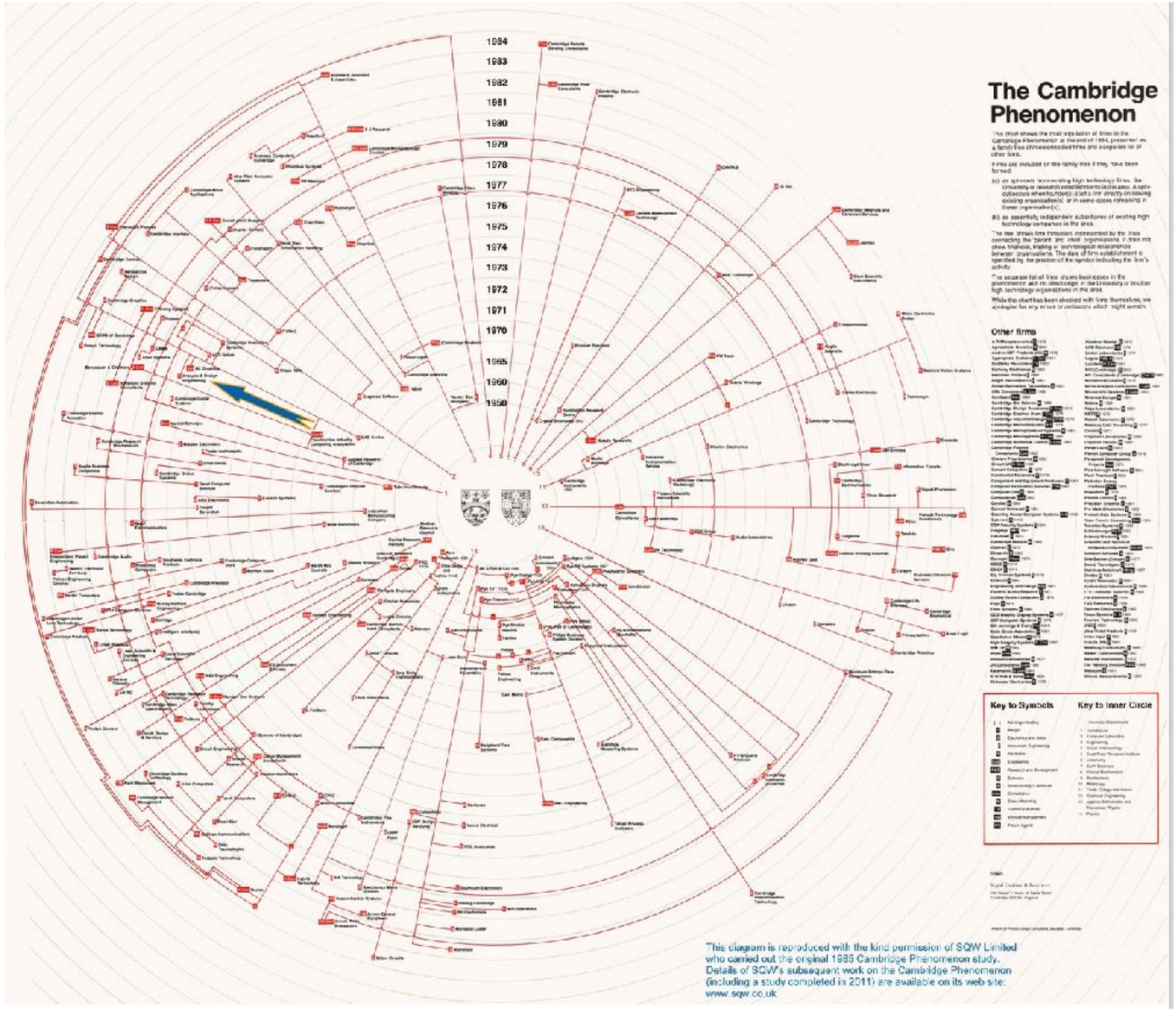
2005–11
Autonomy acquisitions

Dec '05 – Verity $500M
Jul '07 – Zantaz $375M
Jan '09 – Interwoven $775M
Aug '11 – Mountain Digital $380M

2011
Autonomy - Global leader in meaning based computer technology. Acquired by HP in 2011 for $10 B

Autonomy


The Cambridge Phenomenon
The Growth of High Technology Industry in a University Town
KW Nash
Gurney Electronics
Technosyn
Cambridge Technology
Cherlyn Electronics
Eversalds
Industrial Instrumentation Service
Dan Everard
Boothroyd-Stuart
Information Transfer
(Cambridge Electronic Workshop)
Cambridge Communication
Prosser Scientific Instruments
Eicon Research
Signal Processors
Cambridge Consultants
AIM Cambridge
AECL
Prelude Technology Investments
TEK Group
Audio Laboratories
Tangerine
Tandata
PA Technology
Rodney Dale
Domino Printing Sciences
Oric
Tansoft
Business Literature Services
(Polyhedron Services)
Iain Sinclair
Cambridge Life Sciences
Cambridge Biomedical
Linsach
Optronics
Sysoon
Primagraphics
Array Logic
Hy-Q International (Australia)
Cambridge Robotics
Maximum Entropy Data Consultants
Analytical Measuring Systems
Segal Quince & Partners


1984
1983
1982
1981
1980
1979
1978
1977
1976
1975
1974
1973
1972
1971
1970
1965
1960
1950
The Cambridge Phenomenon
Other firms
Key to Symbols
Key to Inner Circle
This diagram is reproduced with the kind permission of SQW Limited who carried out the original 1985 Cambridge Phenomenon study. Details of SQW's subsequent work on the Cambridge Phenomenon (including a study completed in 2011) are available on its web site: www.sqw.co.uk

CAMBRIDGE CLUSTER

EUROPE'S MOST SUCCESSFUL TECHNOLOGY CENTRE

50 years since inception, Cambridge is the oldest and most powerful cluster in Europe. Set against the backdrop of the University of Cambridge, the cluster has evolved into one of the world's most enterprising networks of people and companies, with an explosion of technology, life sciences and service companies that has occurred in the city since 1960.

① Cambridge has over

1,525 TECH COMPANIES

② Employing more than

53,000 PEOPLE

That's enough to stretch hand-in-hand from Silicon Roundabout to Cambridge

Cambridge — London

③ These companies had combined turnover of

£11.8bn in 2011

④ Gross Valued Added per job is :

45k Cambridge — £ — 35k London

⑤ 6% of all SMEs produced 54% of jobs in the UK over the past 7 years

6% — 54%

Source: NESTA

⑥ Market capitalisation generated is:

£50bn

⑦ Unemployment status is:

2.1% Cambridge — 7.8% London

⑧ Scaling up companies generate:

Jobs
Top 50 companies hired 5901 people in the past year

UP 23.2%

UP 17.6%

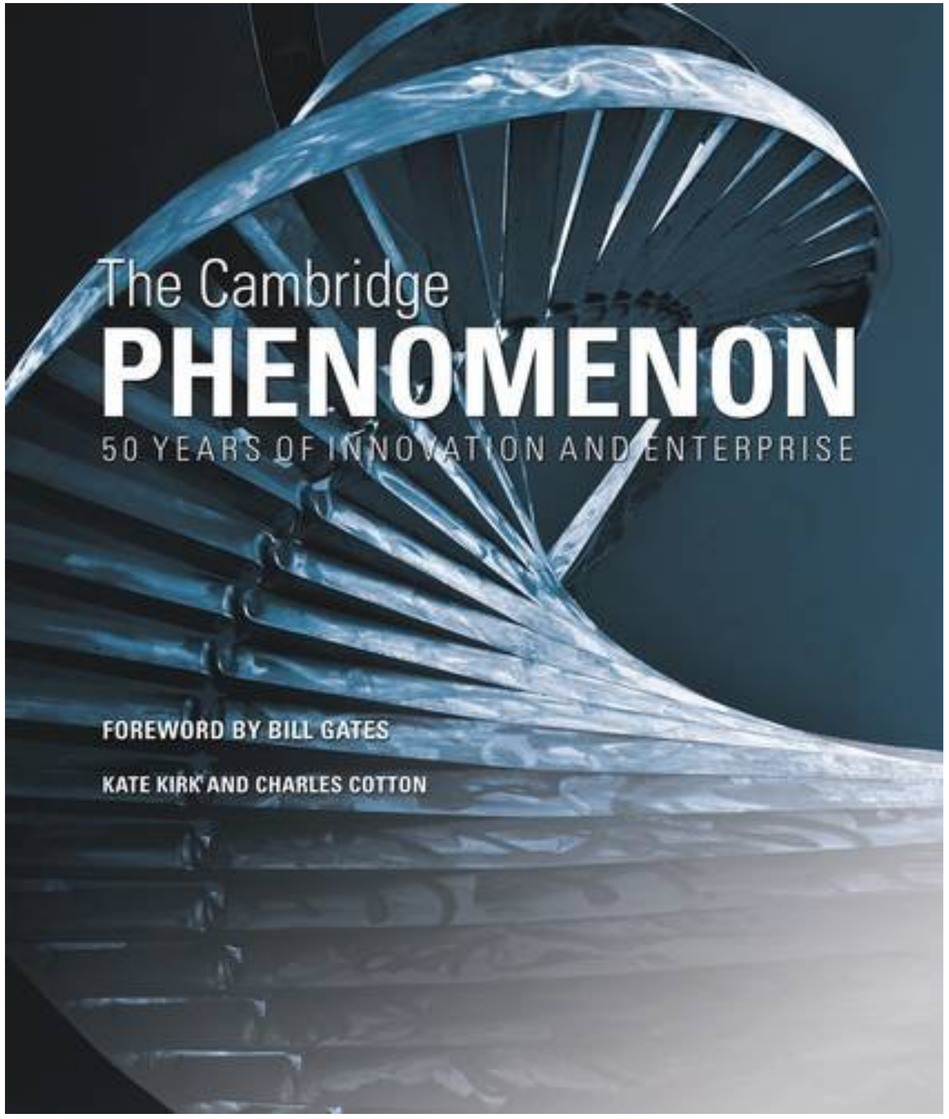
Wealth
Top 50 companies increased their revenue by £1.3bn

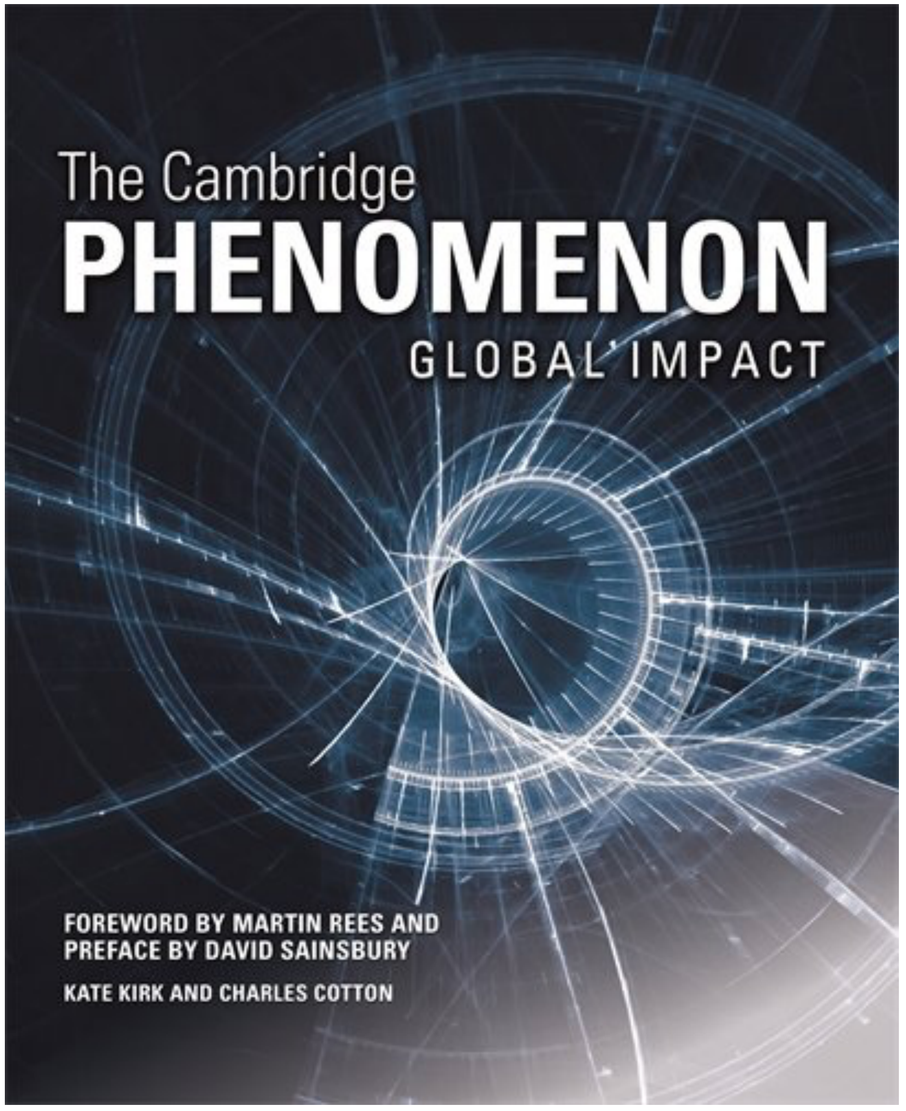
⑨ 12 companies in Cambridge have achieved $1 billion valuations in the last 15 years:

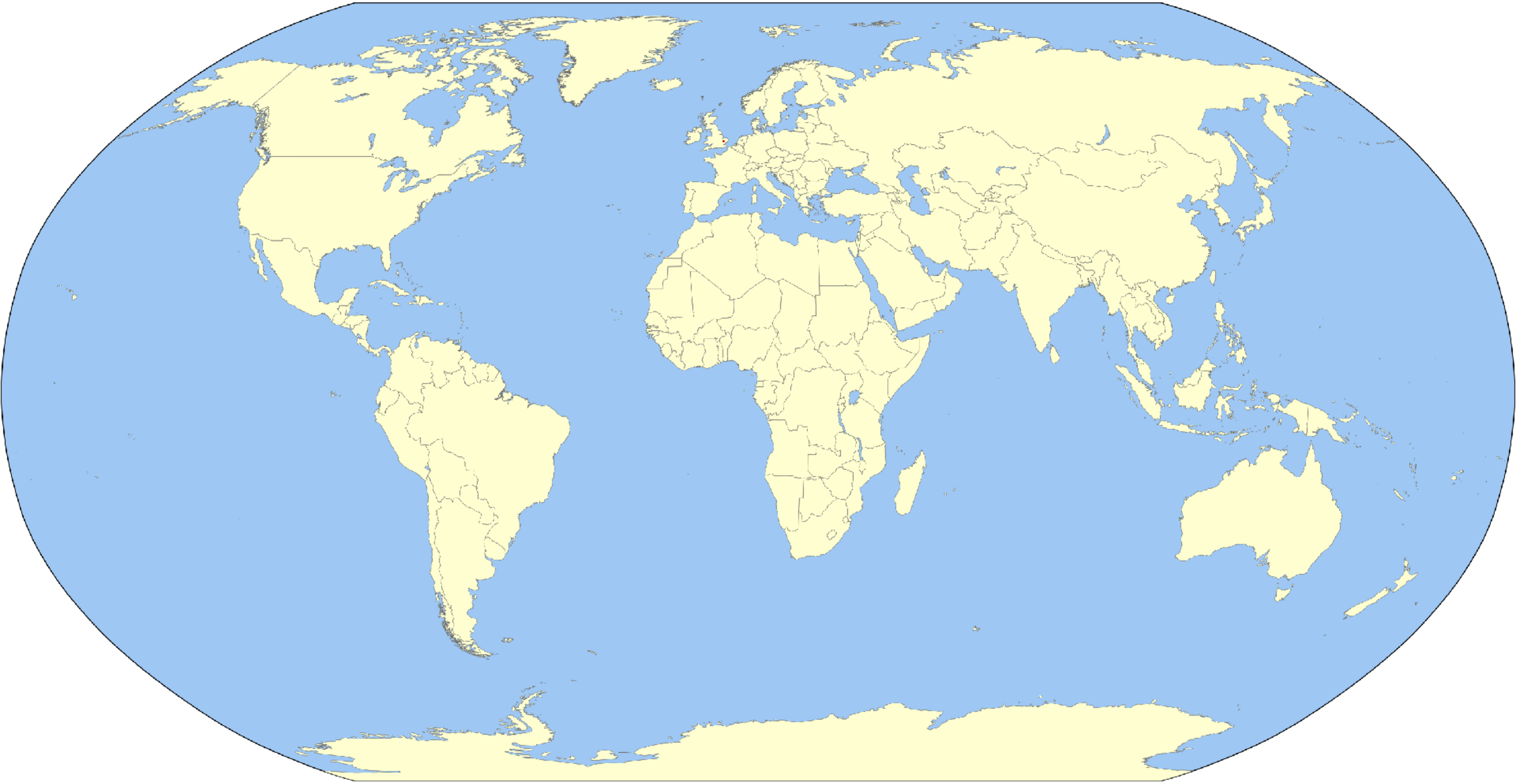
Abcam, ARM, Autonomy, AVEVA, CAT, Chiroscience, CSR, Domino, Ionica, Marshall, Solexa, Virata.

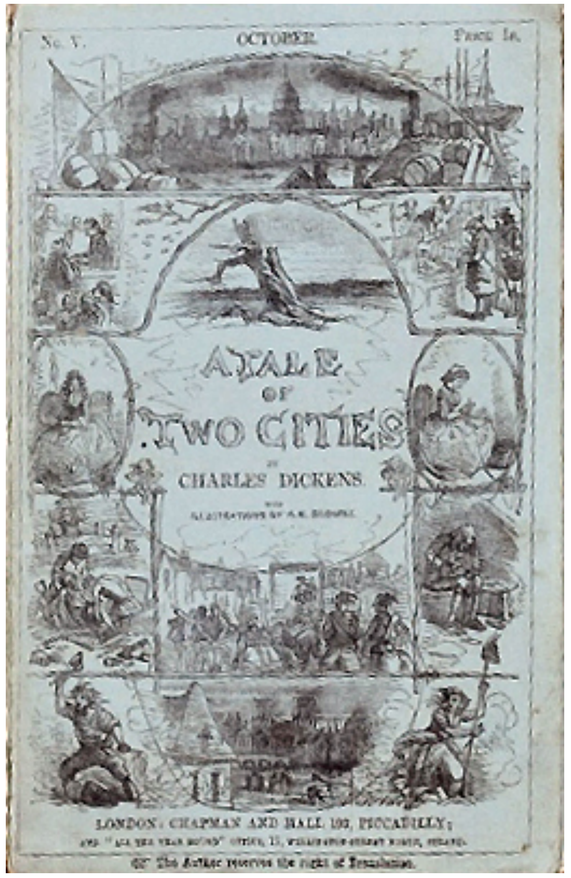
DUEDIL · SILICON VALLEY COMES TO THE UK

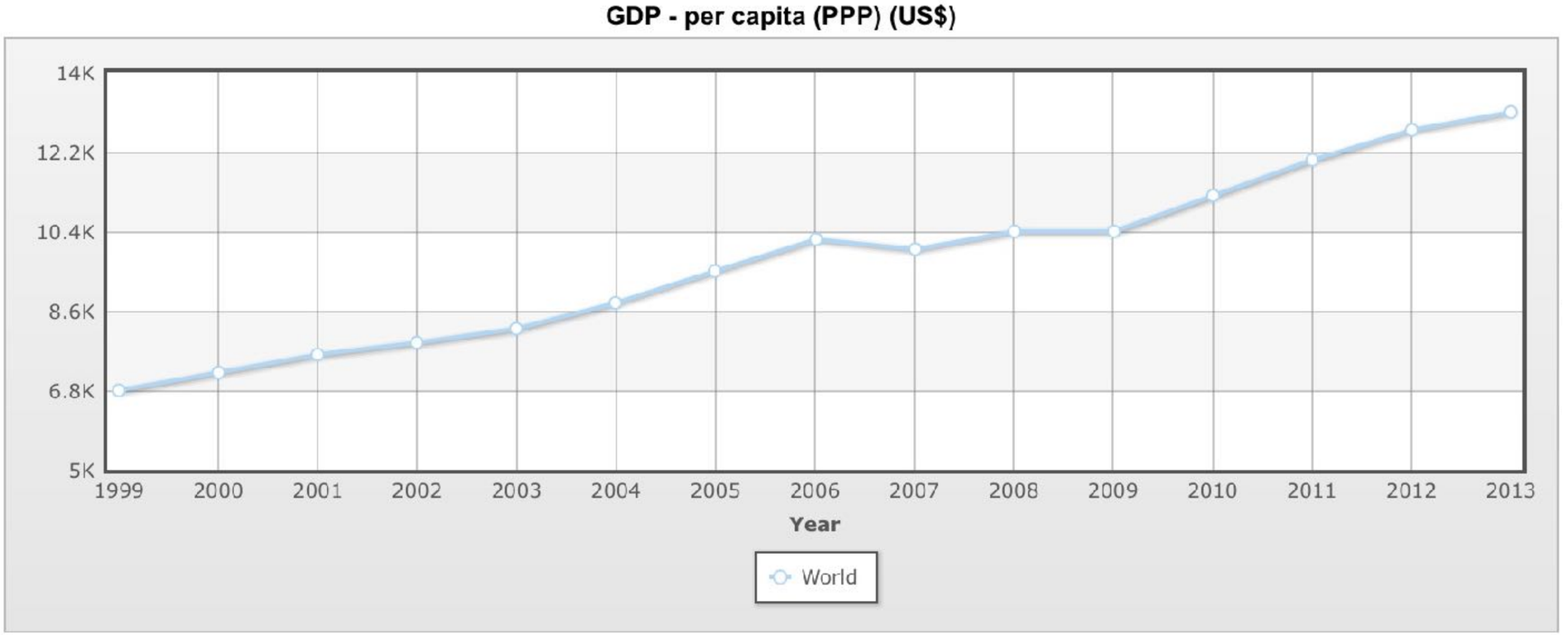
www.cambridge2you.com | duedil.com


The Cambridge
PHENOMENON
50 YEARS OF INNOVATION AND ENTERPRISE
FOREWORD BY BILL GATES
KATE KIRK AND CHARLES COTTON


The Cambridge
PHENOMENON
GLOBAL IMPACT
FOREWORD BY MARTIN REES AND
PREFACE BY DAVID SAINSBURY
KATE KIRK AND CHARLES COTTON




No. V. OCTOBER. Price 1s.
A TALE OF TWO CITIES
BY
CHARLES DICKENS.
LONDON: CHAPMAN AND HALL, 193, PICCADILLY;

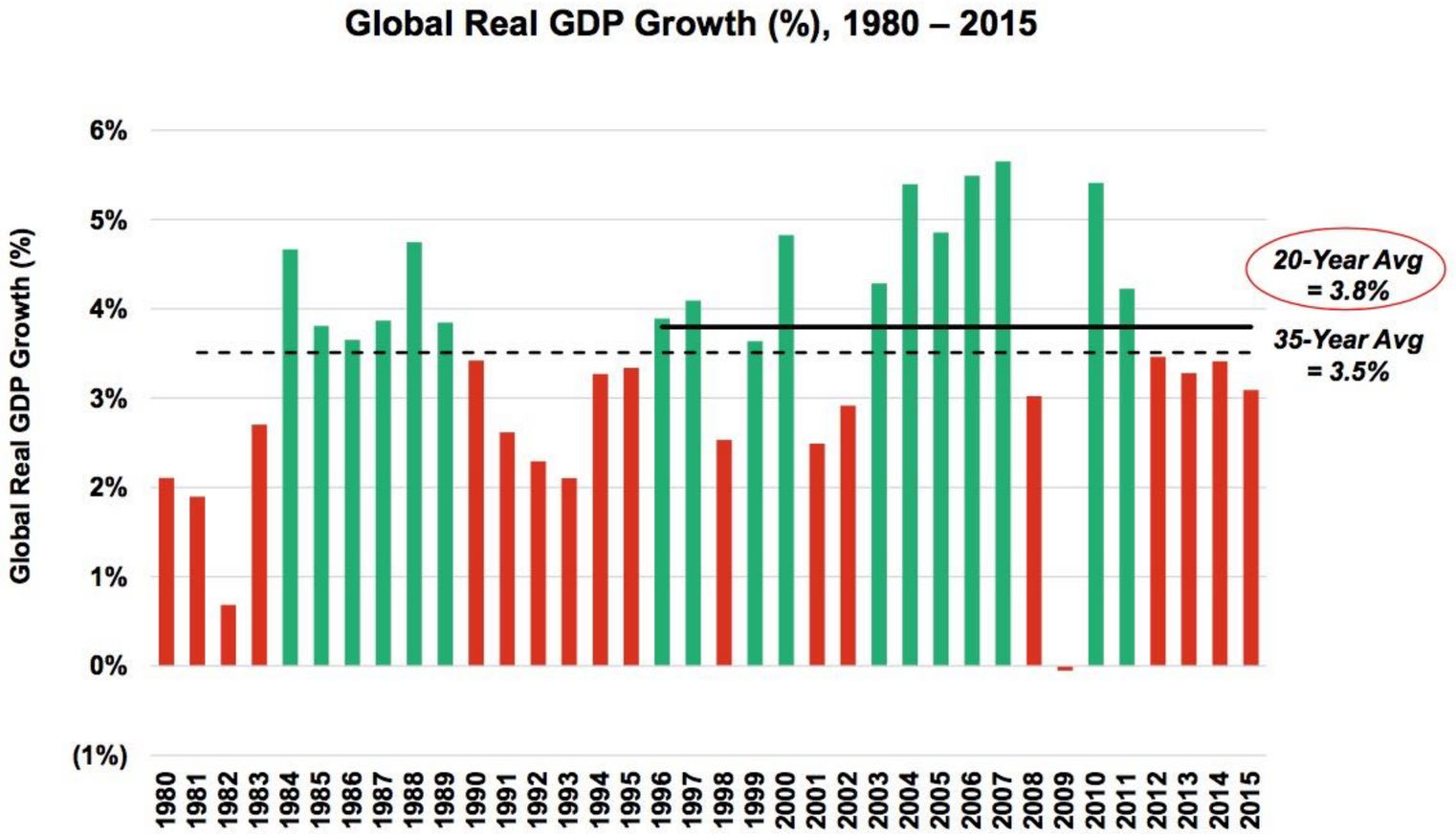


Country	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
World	6,800	7,200	7,600	7,900	8,200	8,800	9,500	10,200	10,000	10,400	10,400	11,200	12,000	12,700	13,100

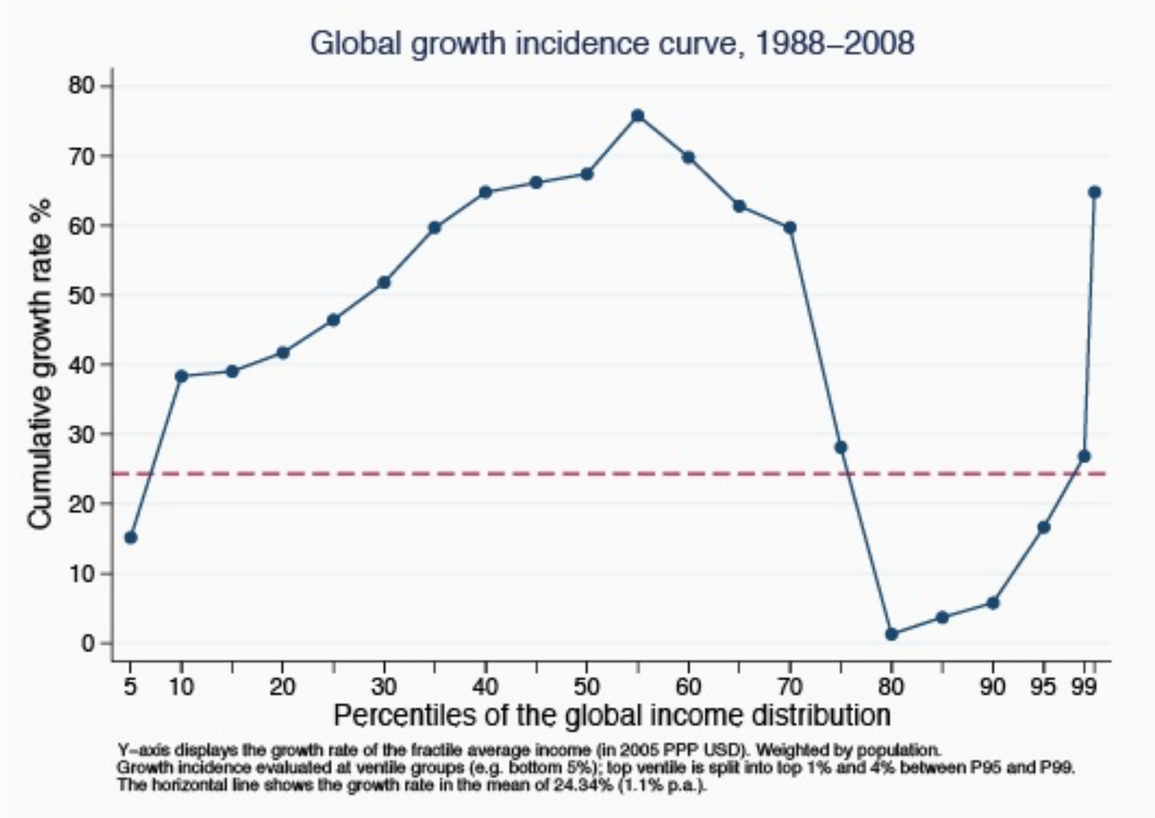
Definition of GDP - per capita (PPP): This entry shows GDP on a purchasing power parity basis divided by population as of 1 July for the same year.

Source: CIA World Factbook - Unless otherwise noted, information in this page is accurate as of June 30, 2015

Global GDP Growth Slowing = Growth in 6 of Last 8 Years @ Below 20-Year Average



Source: IMF WEO, 4/16. Stephen Roach, "A World Turned Inside Out," Yale Jackson Institute for Global Affairs, 5/16.
Note: GDP growth based on constant prices (real GDP growth).



http://blogs.worldbank.org/developmenttalk/global-income-distribution-fall-berlin-wall-great-recession

Economy of the world

Statistics	
Population	7.095 billion (July 2013 est.)[1]
GDP	Nominal: $77.609 trillion (2014 est.)[1] PPP: $106.998 trillion (2014 est.)[1]
GDP growth	3.4% (2014)[2]
GDP per capita	Nominal: $10,857 PPP: $15,073 (2014 est.)
Millionaires (US$)	~10 million i.e. ~0.15% (2009)
Billionaires	1,594 (2014) [3]
People earn below $2 per day	~3.25 billion (~50%)
Unemployment	5.4% (Nov.2014)[4] *note:* 30% combined unemployment and underemployment in many non-industrialized countries; developed countries typically 4%–12% unemployment (2007 est.)
Trailing-ten-years. Some numbers exclude certain countries for lack of information. *All values, unless otherwise stated, are in US dollars.*	

https://en.wikipedia.org/wiki/World_economy

Country Group	GDP (Nominal)	% of Global GDP	Number of Countries	Economies with at least 0.50% of Global GDP
Major advanced economies (G7)	35,542	46.0%	7	**Canada** **France** **Germany** **Italy** **Japan** **United Kingdom** **United States**
Emerging and Developing Asia	14,944	19.3%	29	**China** **India** **Indonesia** Thailand
Other Advanced Economies (Advanced economies excluding G7)	11,431	14.8%	30	**Australia** Austria Belgium **South Korea** Netherlands Norway Spain Sweden Switzerland Taiwan
Latin America and the Caribbean	5,799	7.5%	32	**Argentina** **Brazil** **Mexico**
Middle East, North Africa, Afghanistan, and Pakistan	3,458	4.5%	22	Iran **Saudi Arabia** United Arab Emirates
Commonwealth of Independent States and Georgia	2,521	3.3%	12	**Russia**
Emerging and developing Europe	1,894	2.5%	12	Poland **Turkey**
Sub-Saharan Africa	1,680	2.2%	45	Nigeria
World	77,269	100.0%	189	

Country Group	GDP (PPP)	% of Global GDP	Number of Countries	Economies with at least 0.50% of Global GDP
Major advanced economies (G7)	35,746	31.5%	7	**Canada** **France** **Germany** **Italy** **Japan** **United Kingdom** **United States**
Emerging and Developing Asia	34,781	30.6%	29	**China** **India** **Indonesia** Malaysia Philippines Thailand
Other Advanced Economies (Advanced economies excluding G7)	7,539	6.6%	30	**Australia** **South Korea** Netherlands Spain Taiwan
Latin America and the Caribbean	9,470	8.3%	32	**Argentina** **Brazil** Colombia **Mexico** Venezuela
Middle East, North Africa, Afghanistan, and Pakistan	8,631	7.6%	22	Algeria Egypt Iran Pakistan **Saudi Arabia** United Arab Emirates
Commonwealth of Independent States and Georgia	5,222	4.6%	12	**Russia**
Emerging and developing Europe	3,722	3.3%	12	Poland **Turkey**
Sub-Saharan Africa	3,513	3.1%	45	Nigeria **South Africa**
World	113,523	100.0%	189	

https://en.wikipedia.org/wiki/World_economy

List of the 25 largest economies by GDP (nominal) at their peak level of GDP in Billions US$[9][10]

Rank	Country	Value (USD$)	Peak Year
—	*World*	73,171	2015
1	United States	17,947	2015
—	*European Union*	16,220	2015
2	China	10,983	2015
3	Japan	4,123	2015
4	Germany	3,358	2015
5	United Kingdom	2,849	2015
6	France	2,422	2015
7	India	2,091	2015
8	Italy	1,816	2015
9	Brazil	1,773	2015
10	Canada	1,552	2015
11	South Korea	1,377	2015
12	Russia	1,325	2015
13	Australia	1,224	2015
14	Spain	1,200	2015
15	Mexico	1,144	2015
16	Indonesia	859	2015
17	Netherlands	738	2015
18	Turkey	734	2015
19	Iran	665	2013
20	Saudi Arabia	653	2015

List of the 25 largest economies by GDP (PPP) at their peak level of GDP in Billions US$[9][11]

Rank	Country	Value (USD$)	Peak Year
—	*World*	113,162	2015
1	China	19,510	2015
—	*European Union*	19,176	2015
2	United States	17,968	2015
3	India	8,027	2015
4	Japan	4,842	2015
5	Germany	3,842	2015
6	Russia	3,745	2014
7	Brazil	3,276	2014
8	Indonesia	2,839	2015
9	United Kingdom	2,660	2015
10	France	2,647	2015
11	Mexico	2,220	2015
12	Italy	2,174	2015
13	South Korea	1,849	2015
14	Saudi Arabia	1,681	2015
15	Spain	1,636	2015
16	Canada	1,628	2015
17	Turkey	1,576	2015
18	Iran	1,382	2015
19	Australia	1,137	2015
20	Taiwan	1,114	2015

List of the 10 largest economies by contribution to global economic growth by GDP (nominal) over 2014-15[12]

Rank	Country	Percentage (%)
—	*World*	100.0
1	China	51.3
2	United States	30.9
3	India	6.6
4	Egypt	1.9
5	Argentina	1.8
6	Pakistan	1.2
7	Bangladesh	0.9
8	Hong Kong	0.8
9	Philippines	0.7
10	Vietnam	0.6
	Remaining Countries	3.2

https://en.wikipedia.org/wiki/World_economy

WHO IN WASHINGTON IS RESPONSIBLE FOR THE

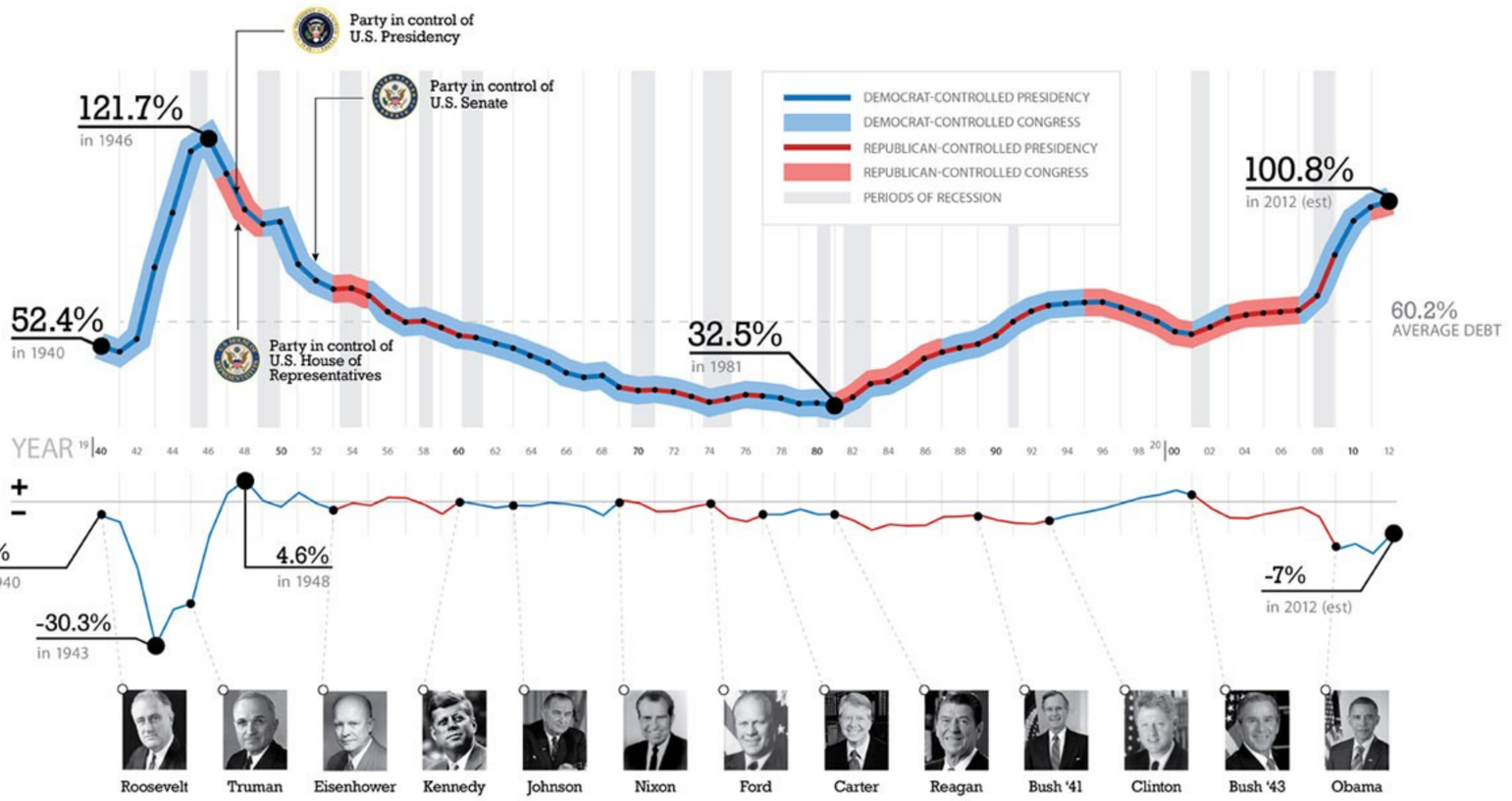
U.S. DEBT ???

With all the talk lately about the debt ceiling, we wanted to take a look at how we got here. While political parties play the blame game, the facts paint a more complicated picture. The data shows that both parties have presided over huge increases and decreases in our national debt, and that events like World War 2 and periods of recession have often been far more important than party ideology.

UNITED STATES DEBT AS A PERCENTAGE OF GDP (1940 - 2012 EST)

Measuring U.S. debt in numbers that haven't been adjusted for inflation produces an alarming and somewhat misleading result. .05 in 1940 (5 trillions) • 16.3 in 2012

Measuring U.S. debt as a percentage of GDP gives us a much better idea of who our biggest borrowers have been.



BUDGET SURPLUSES & DEFICITS AS A PERCENTAGE OF GDP

Some presidents are better at balancing budgets than others. Despite labels such as fiscal conservative or big government liberal, the data shows that the ability or inability to balance budgets is truly bi-partisan.

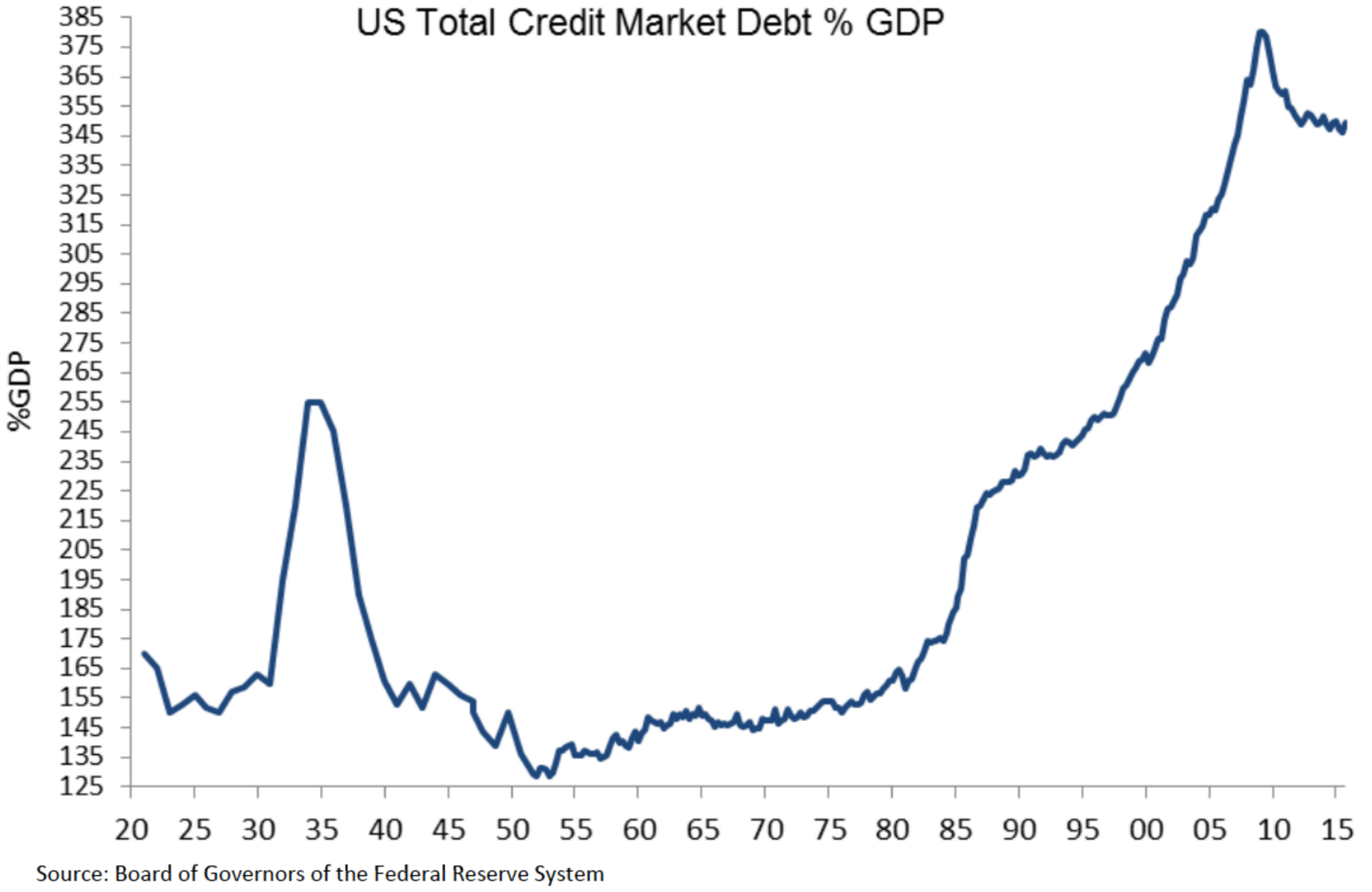
HOW THE RATIO OF US DEBT COMPARES TO OTHER COUNTRIES.

The range is enormous due to emerging third world markets and wild swings created by the economic collapse. (Public Debt/GDP)

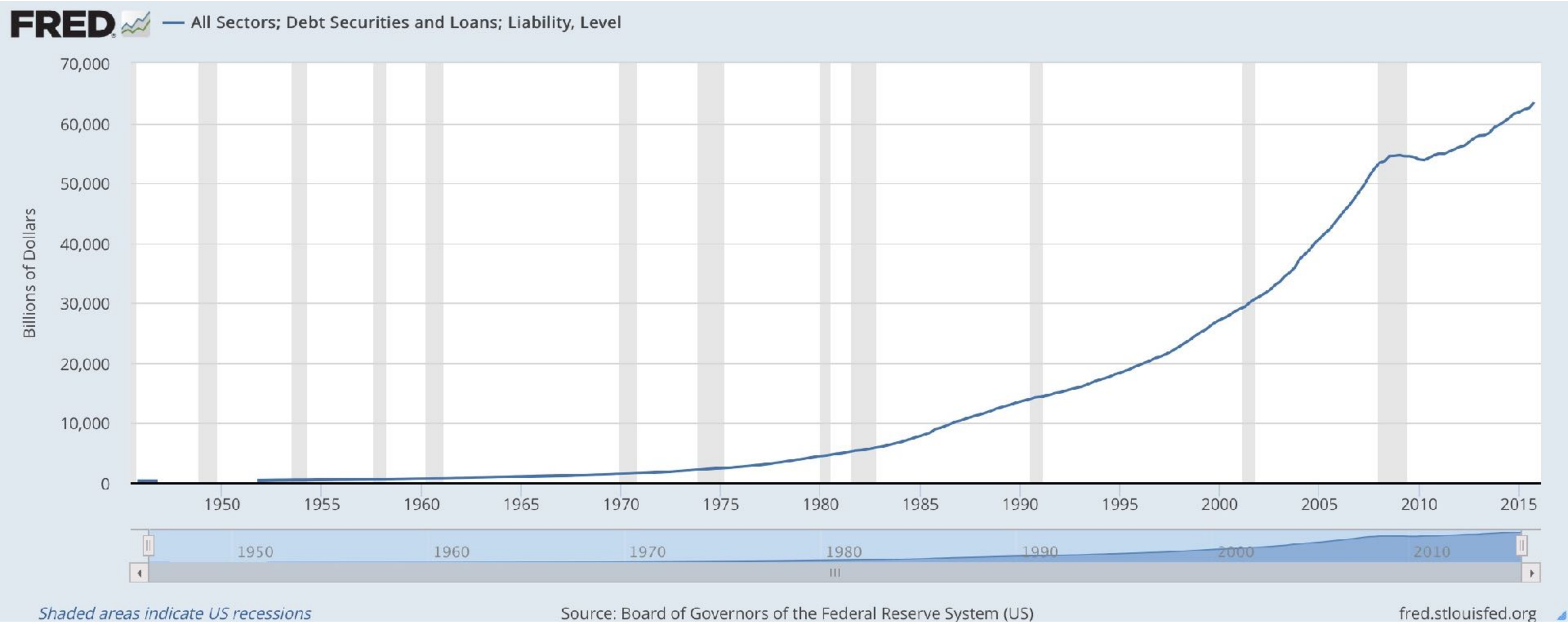
elefintdesigns.com | Sources: CIA World Fact Book, White House Office of Management and Budget.

Designed by elefint designs

https://en.wikipedia.org/wiki/World_economy



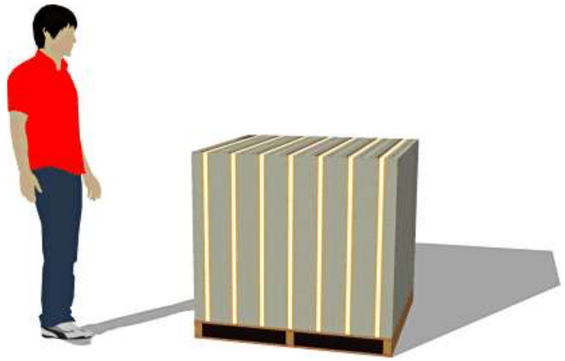
http://trueeconomics.blogspot.co.uk/2016/05/11516-us-economy-three-charts-debt-one.html


FRED
All Sectors; Debt Securities and Loans; Liability, Level
Billions of Dollars
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
1950
1955
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
Shaded areas indicate US recessions
Source: Board of Governors of the Federal Reserve System (US)
fred.stlouisfed.org

http://www.pagetutor.com/trillion/index.html

http://www.pagetutor.com/trillion/index.html

http://www.pagetutor.com/trillion/index.html



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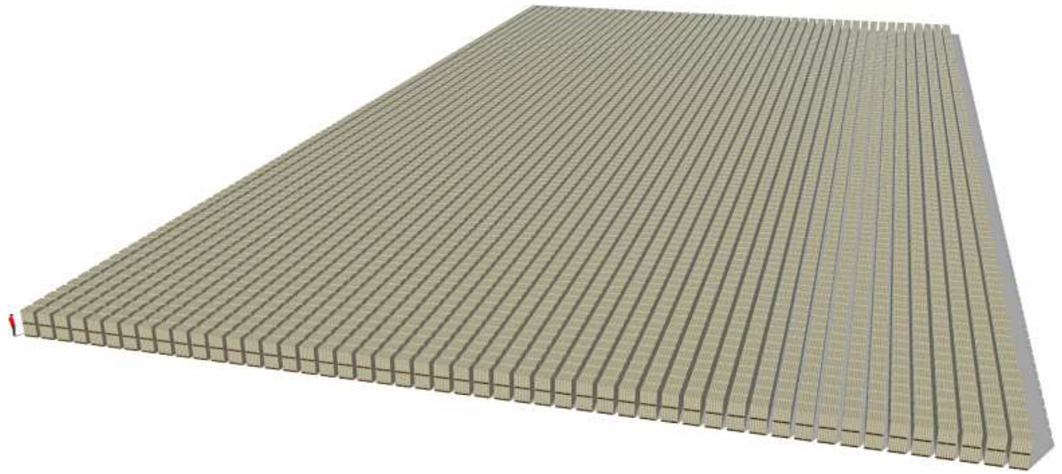

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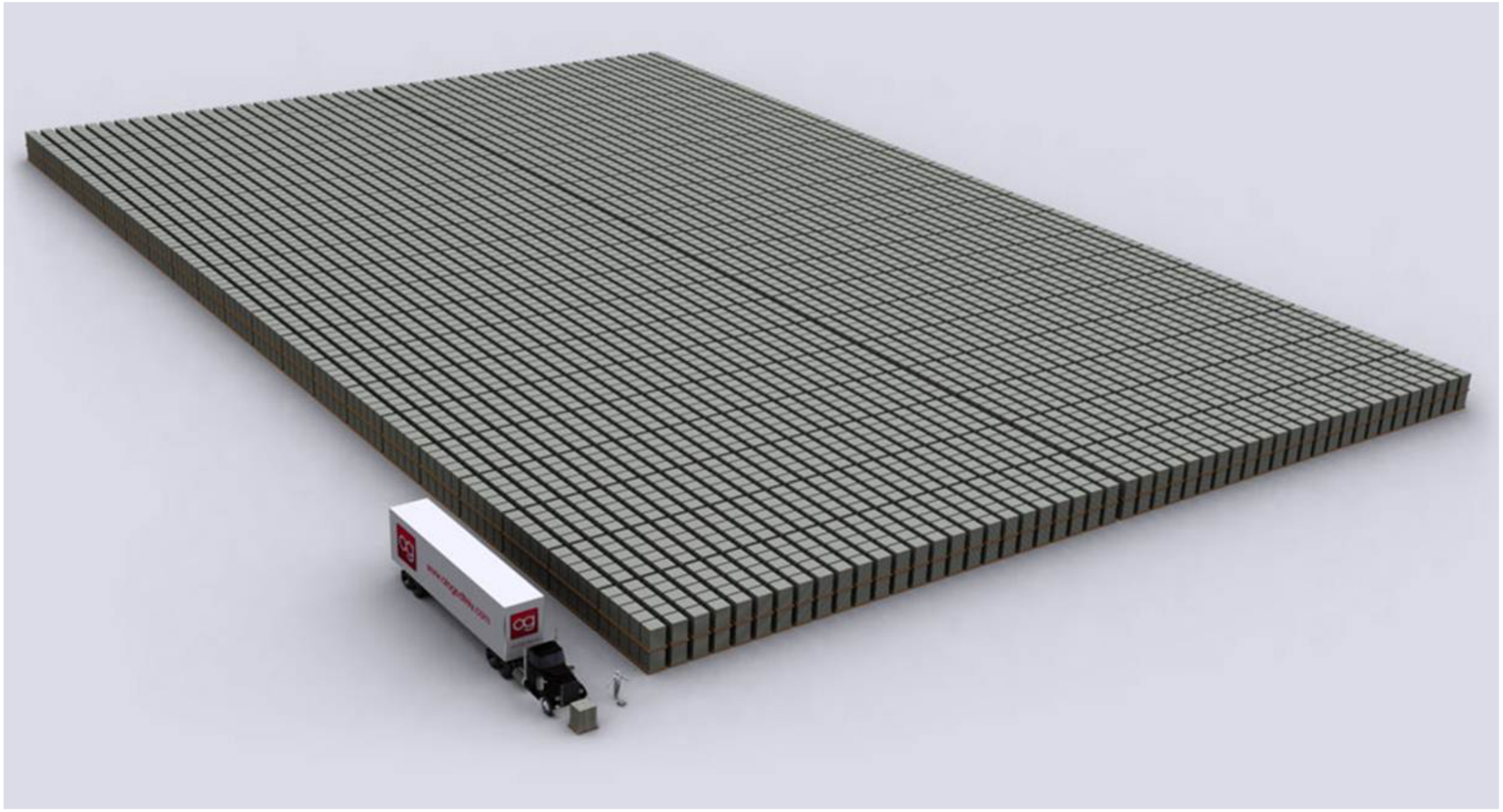

http://www.tlarkins.net/stuff/politics/govt-debt0.html

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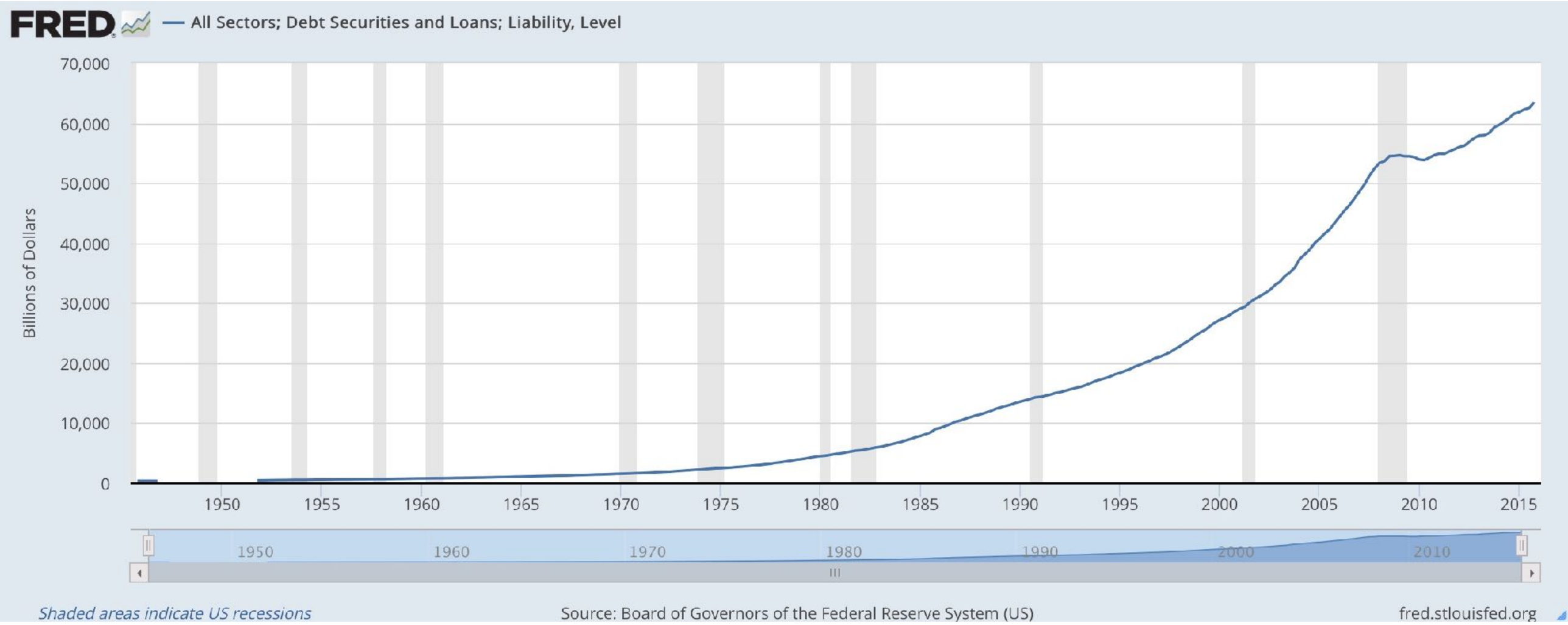
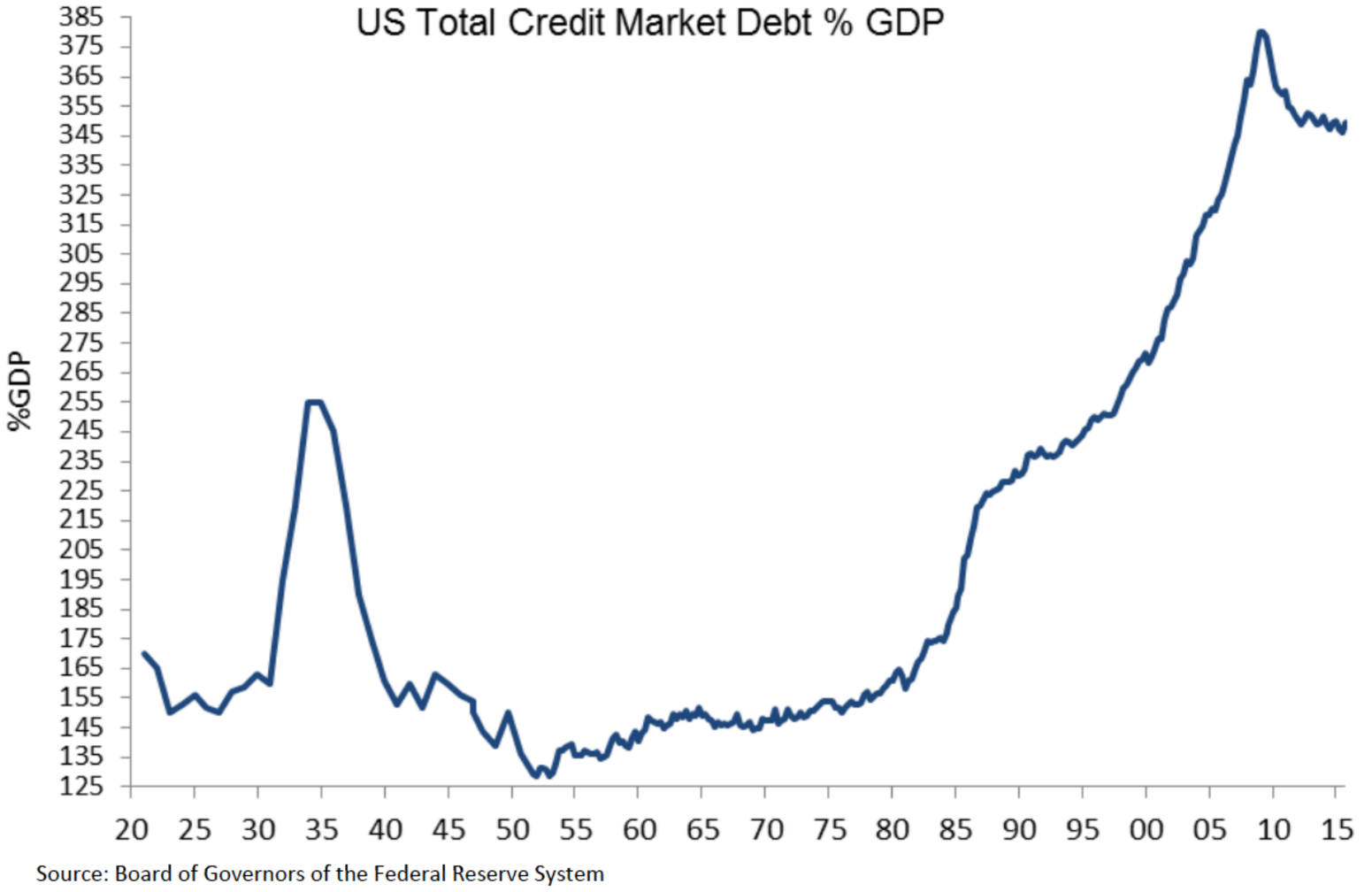

FRED
All Sectors; Debt Securities and Loans; Liability, Level
Billions of Dollars
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
1950
1955
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
Shaded areas indicate US recessions
Source: Board of Governors of the Federal Reserve System (US)
fred.stlouisfed.org



http://trueeconomics.blogspot.co.uk/2016/05/11516-us-economy-three-charts-debt-one.html

WHO IN WASHINGTON IS RESPONSIBLE FOR THE

U.S. DEBT

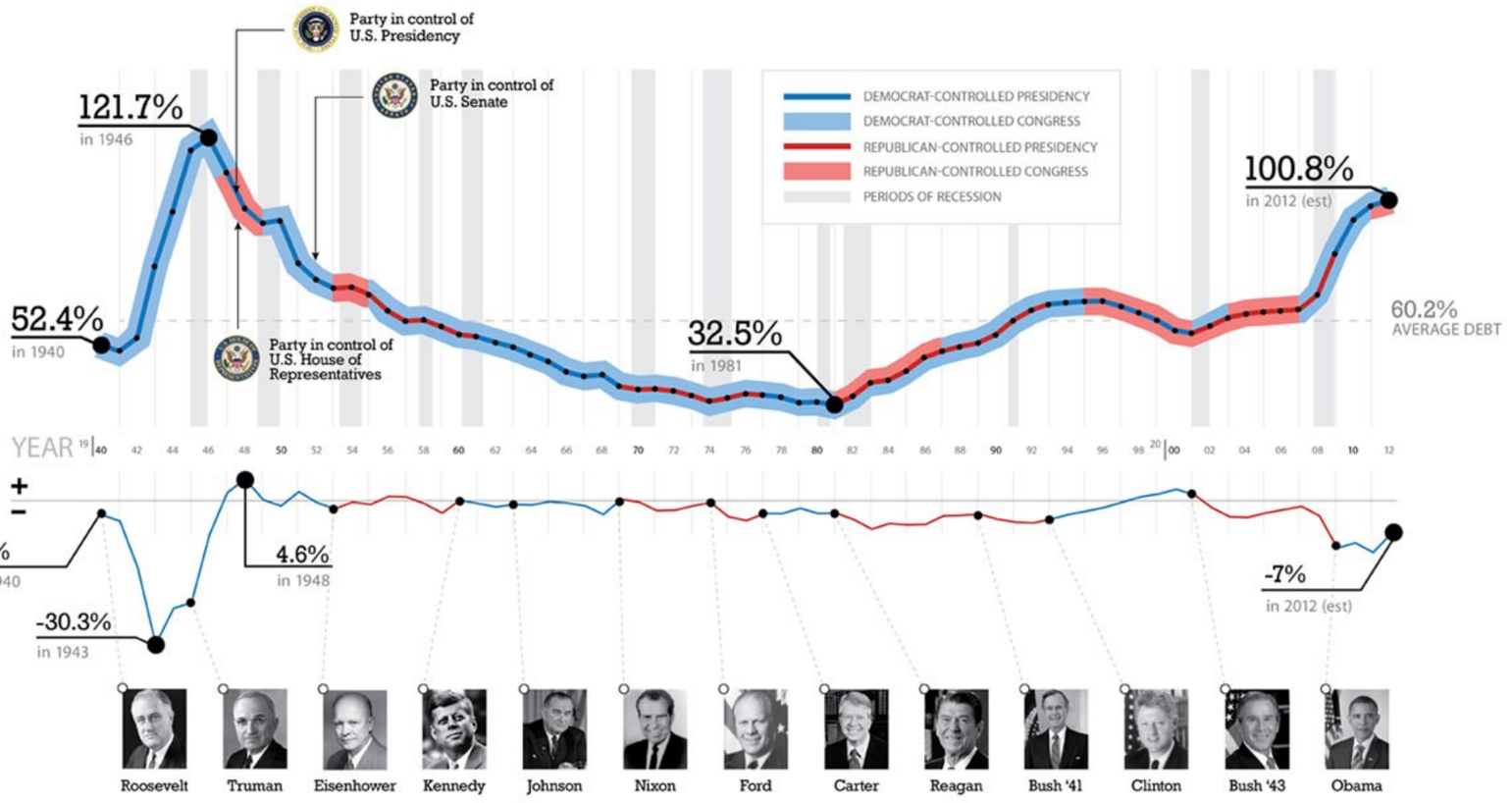
???

With all the talk lately about the debt ceiling, we wanted to take a look at how we got here. While political parties play the blame game, the facts paint a more complicated picture. The data shows that both parties have presided over huge increases and decreases in our national debt, and that events like World War 2 and periods of recession have often been far more important than party ideology.

UNITED STATES DEBT AS A PERCENTAGE OF GDP (1940 - 2012 EST)

Measuring U.S. debt in numbers that haven't been adjusted for inflation produces an alarming and somewhat misleading result. .05 in 1940 (5 trillions) • 16.3 in 2012

Measuring U.S. debt as a percentage of GDP gives us a much better idea of who our biggest borrowers have been.



BUDGET SURPLUSES & DEFICITS AS A PERCENTAGE OF GDP

Some presidents are better at balancing budgets than others. Despite labels such as fiscal conservative or big government liberal, the data shows that the ability or inability to balance budgets is truly bi-partisan.

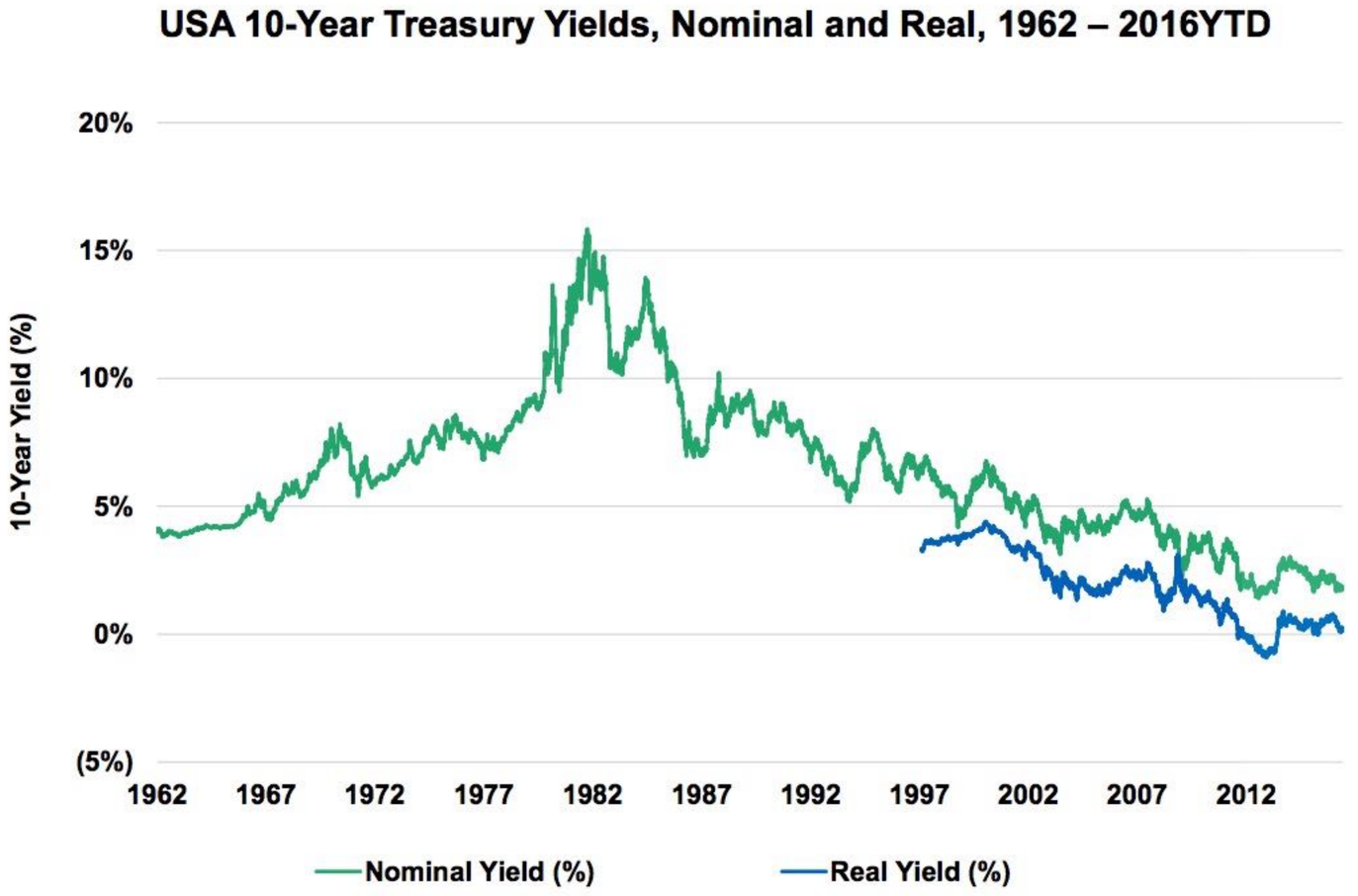
HOW THE RATIO OF US DEBT COMPARES TO OTHER COUNTRIES.

The range is enormous due to emerging third world markets and wild swings created by the economic collapse. (Public Debt/GDP)

elefintdesigns.com | Sources: CIA World Fact Book, White House Office of Management and Budget.

Designed by elefint designs

USA 10-Year Treasury Yield = Low by Historical Standards

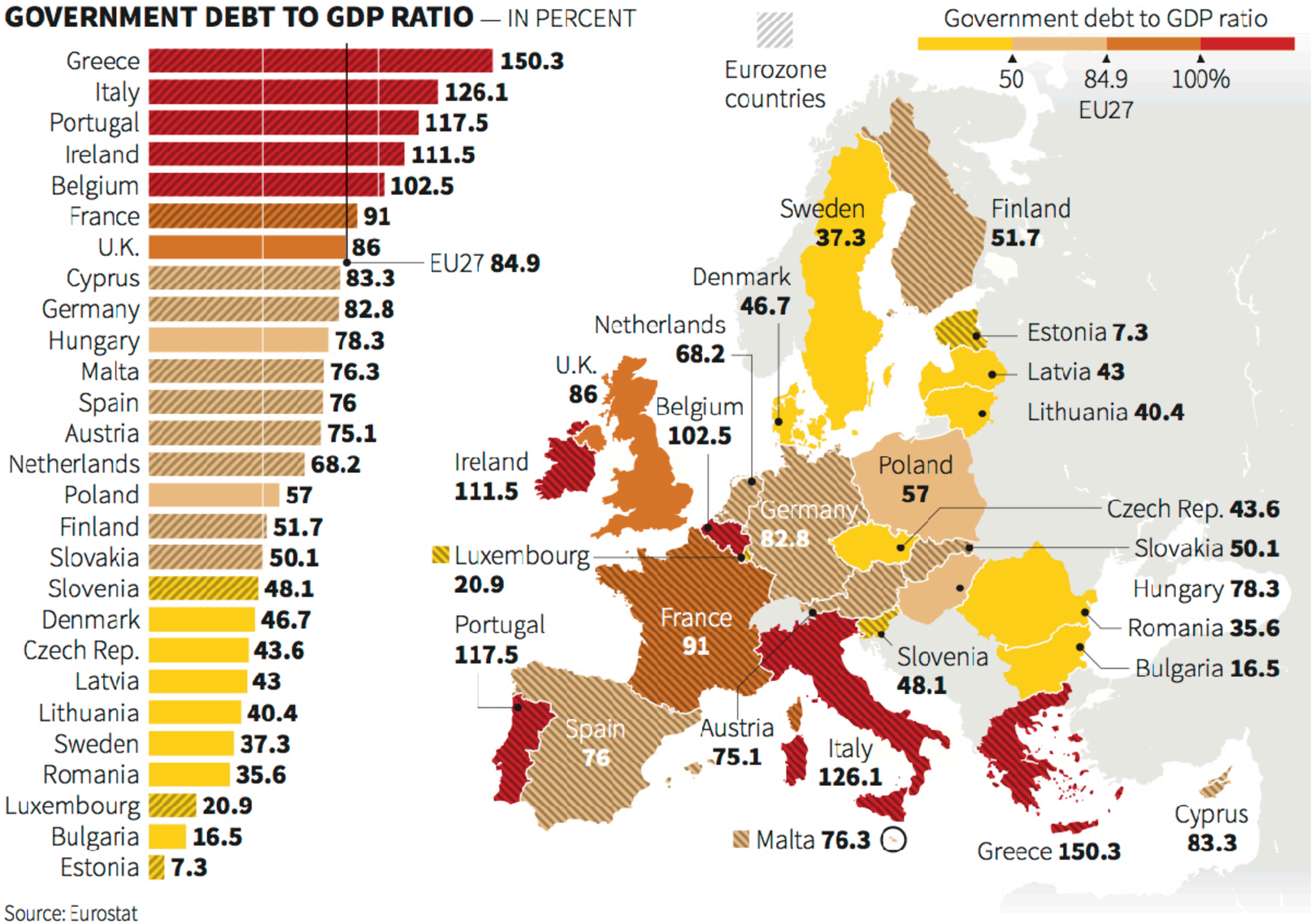


@KPCB

Source: Morgan Stanley, Bloomberg, 5/16
Note: Real rates based on USGGT10Y Index on Bloomberg, which measures yield to maturity (pre-tax) on Generic 10-Year USA government inflation-index bonds.

European government debt

At the end of the second quarter of 2012, the government debt to GDP ratio in the euro area stood at 90 percent, compared with 88.2 percent at the end of the first quarter of 2012. In the EU27, the ratio increased from 83.5 percent to 84.9 percent.

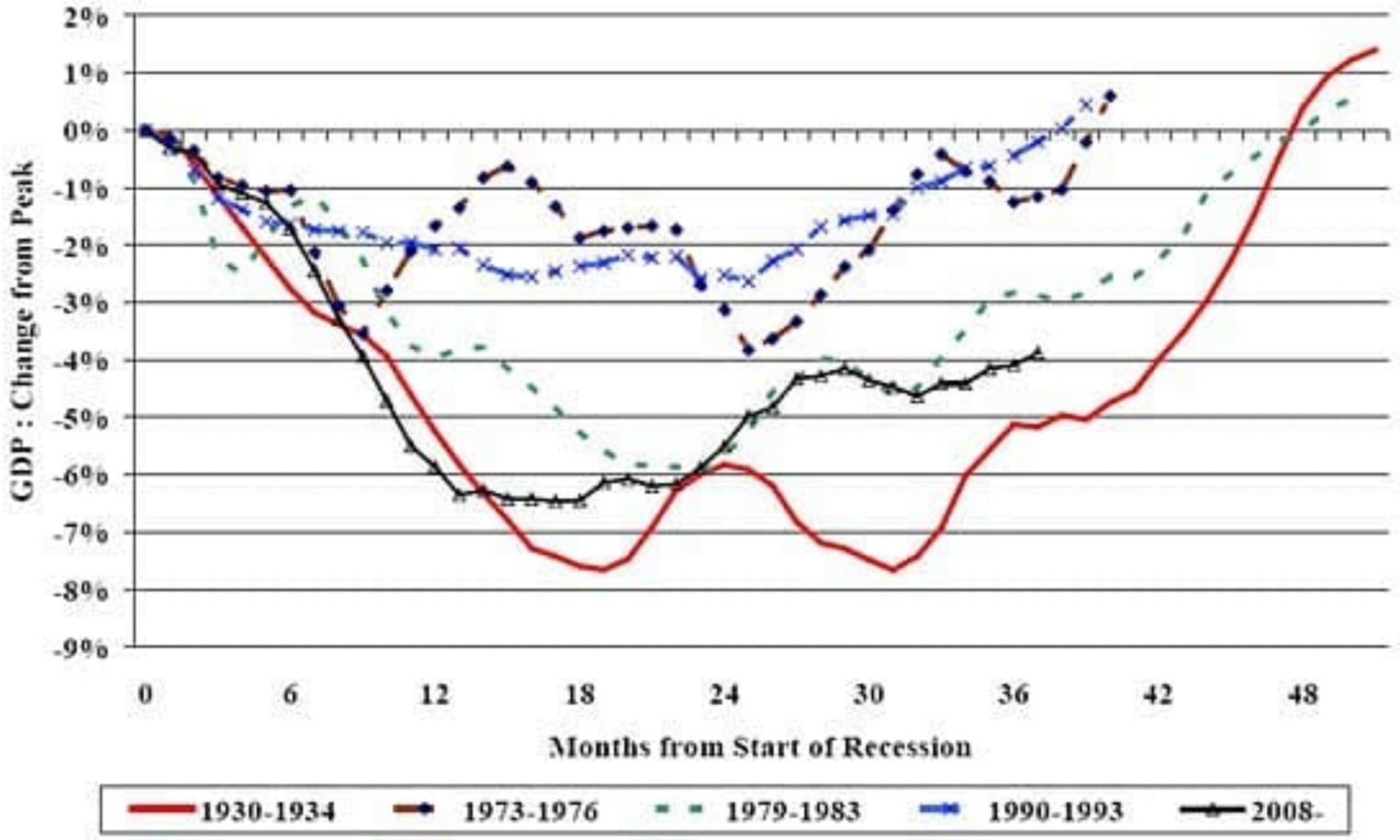


Source: Eurostat

W. Foo, 01/11/2012

REUTERS

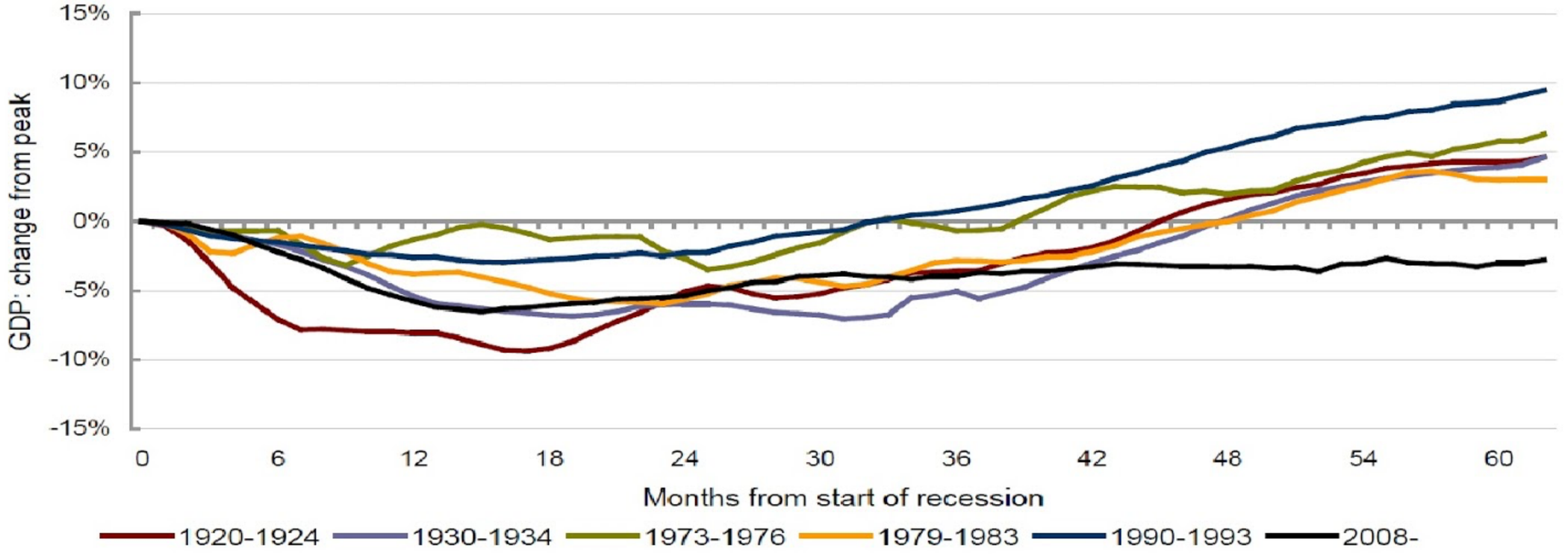
Profile of recession and recovery



Calculated from three-month moving averages of monthly GDP

http://www.telegraph.co.uk/finance/economics/8509671/UK-economic-profile-of-recession-and-recovery.html

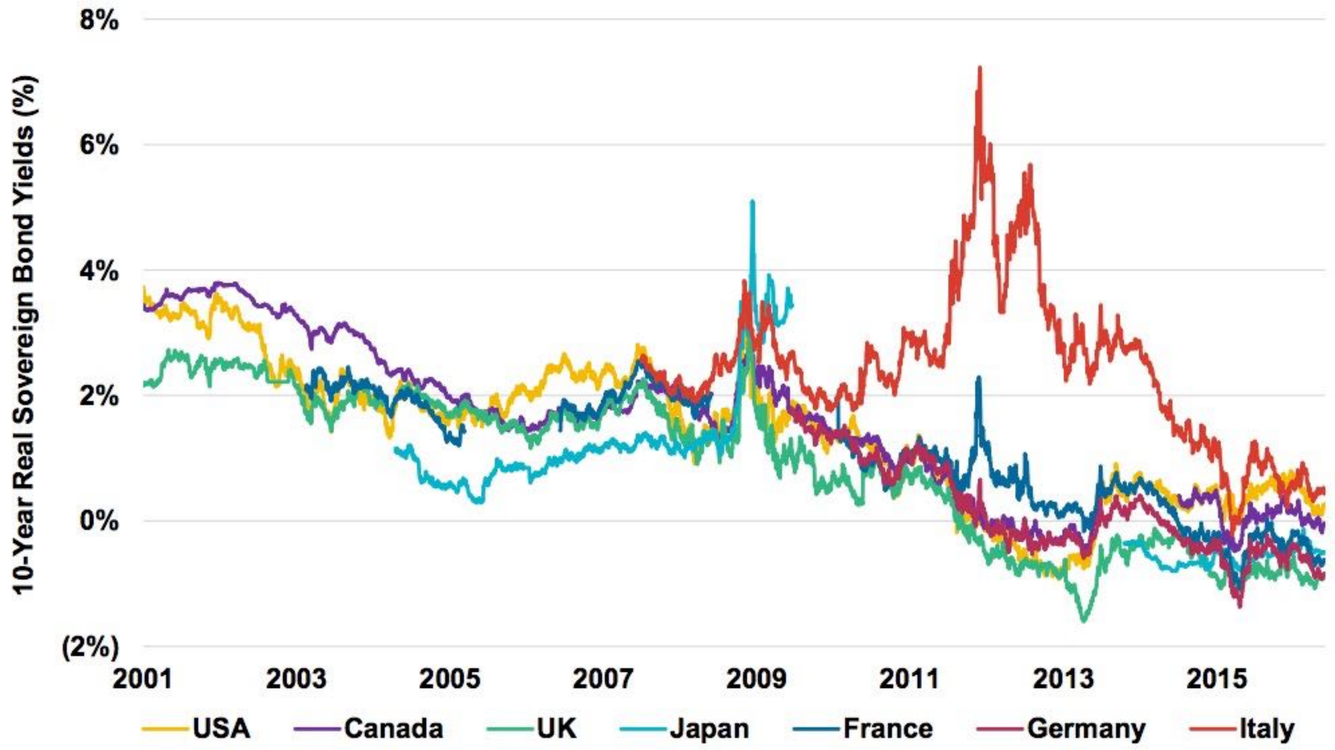
Figure 1. The profile of recession and recovery



Notes: Calculated from centred three-month moving averages of monthly GDP, the effect of the miners' strike in 1921 is excluded from the 1920-1924 profile (the strike started on 31st March 1921 and ended on 28th June 1921).

http://www.niesr.ac.uk/blog/recessions-and-recoveries-historical-perspective-updated-april-9-2013#.WAyckqOZNhE

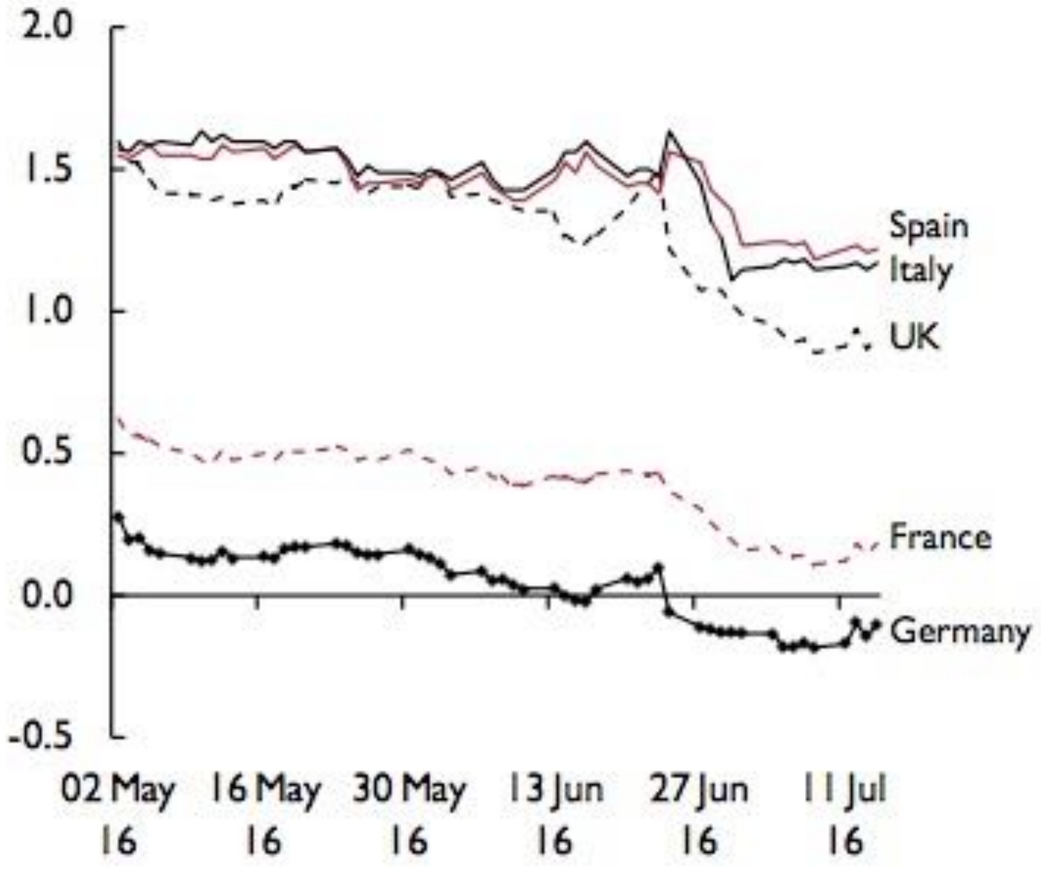
10-Year Real Sovereign Bond Yields (%), Various Countries, 2001 – 2016YTD



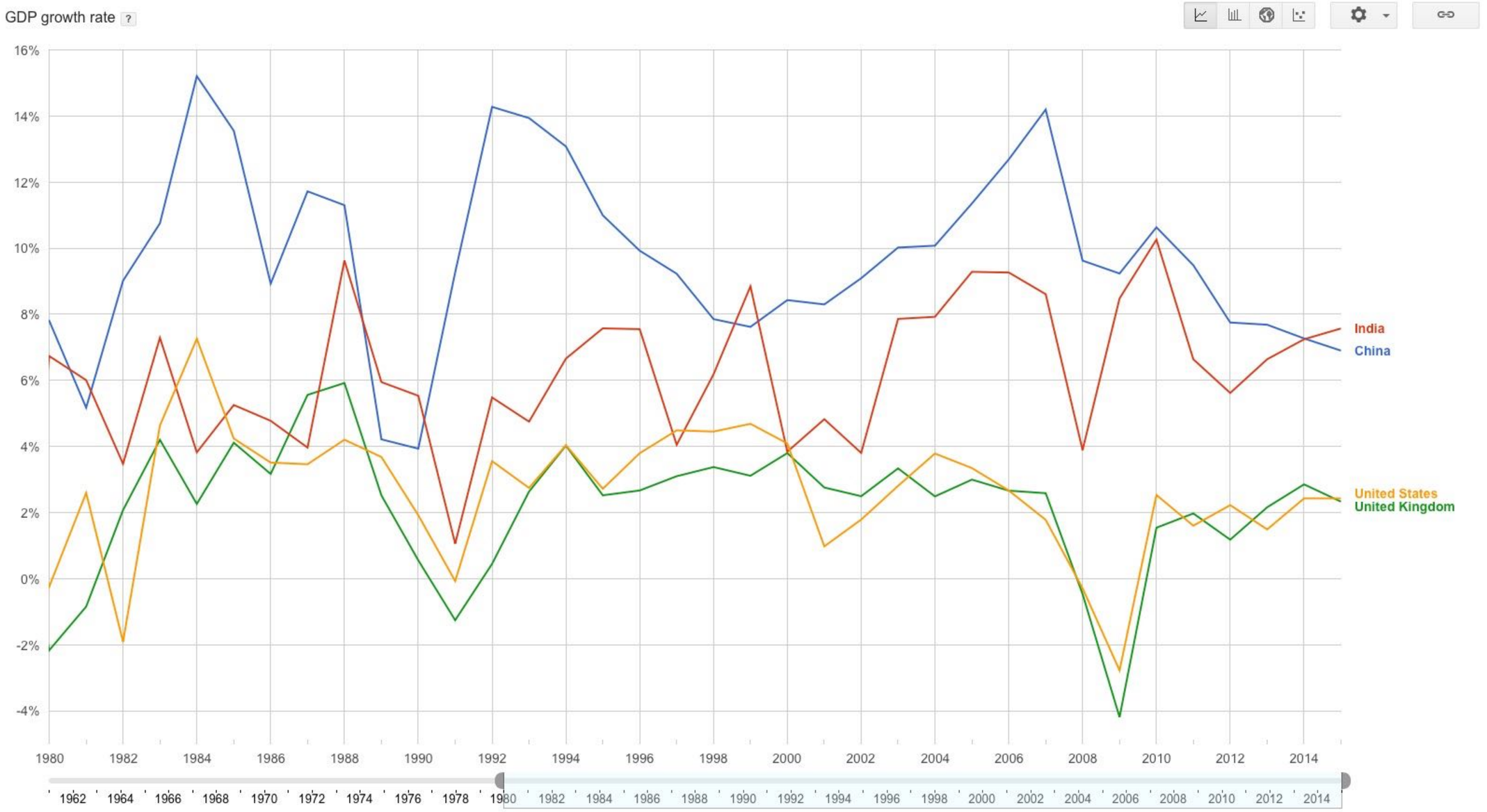
@KPCB

Source: Morgan Stanley, Bloomberg, 5/16.
Note: Real rates based on yield to maturity on 10-year inflation-indexed treasury security for each country.

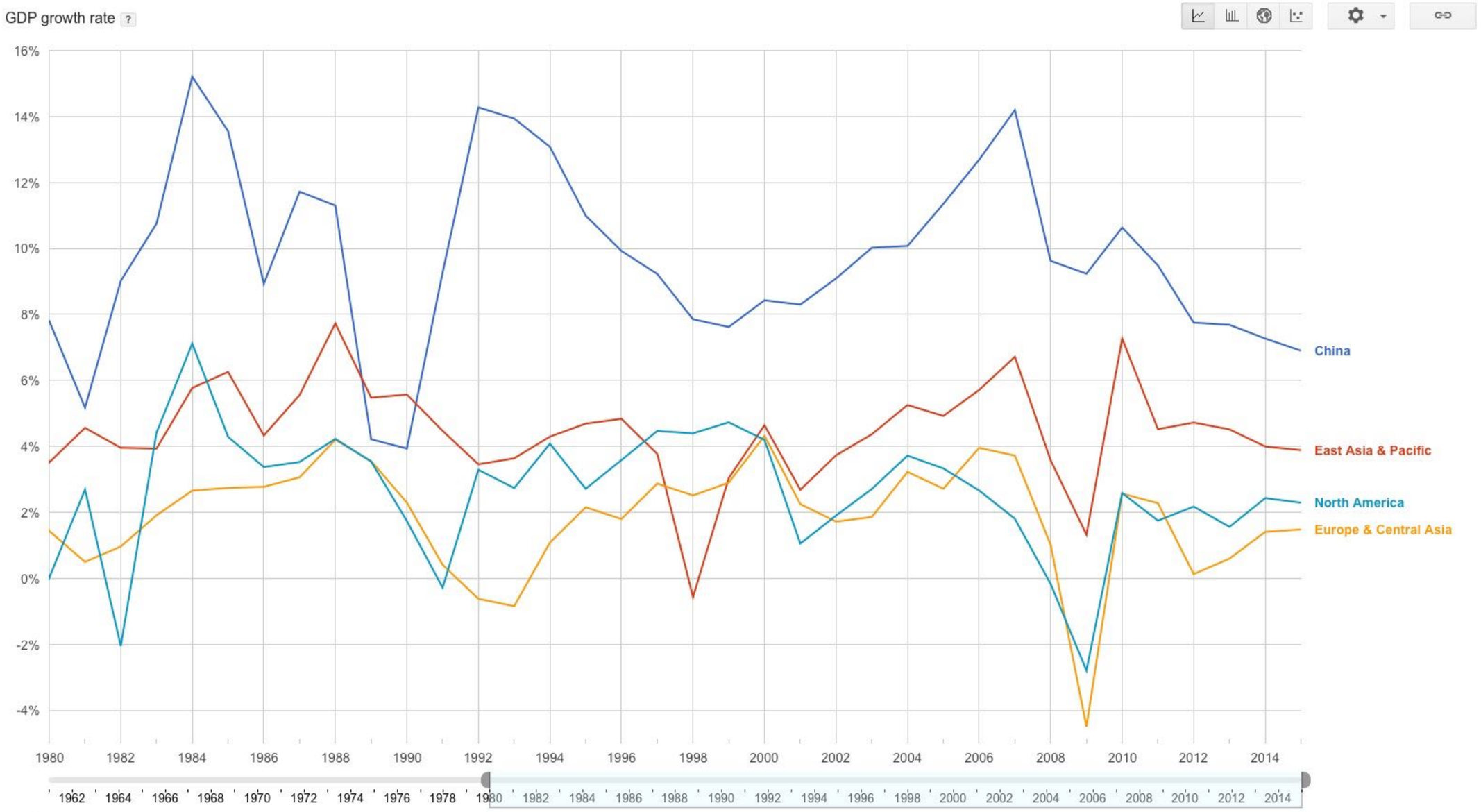
Figure B5. 10-year sovereign bond yields



Source: Datastream.



Data from World Bank Last updated: Oct 7, 2016



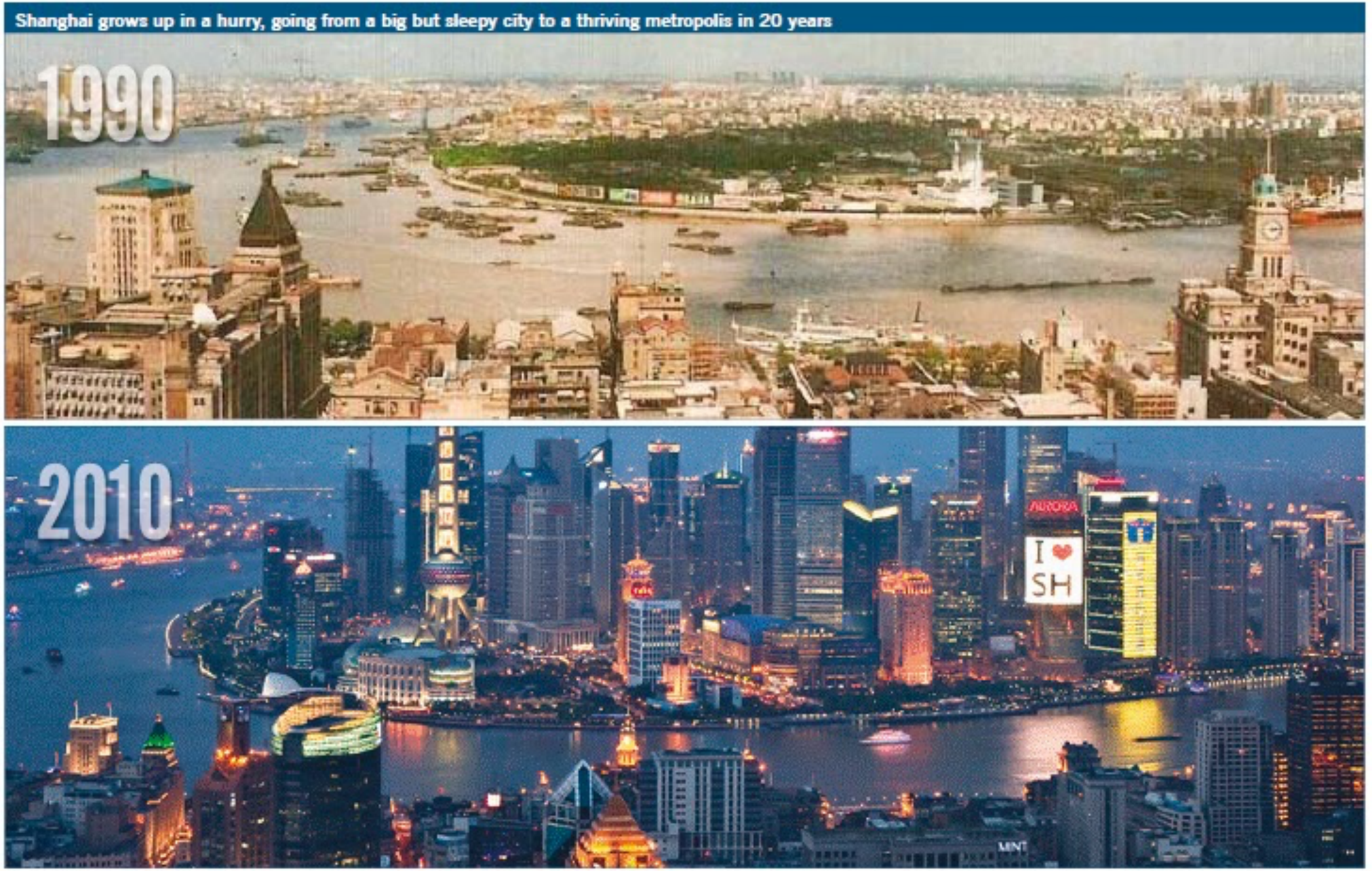
Data from World Bank Last updated: Oct 7, 2016

World GDP

Contribution to growth, percentage points, from:

*Estimates based on 48 economies representing 86% of world GDP.
Weighted GDP at purchasing-power parity

Sources: Haver Analytics; IMF; *The Economist*



http://www.compasscapital.co/a-closer-look-at-china/

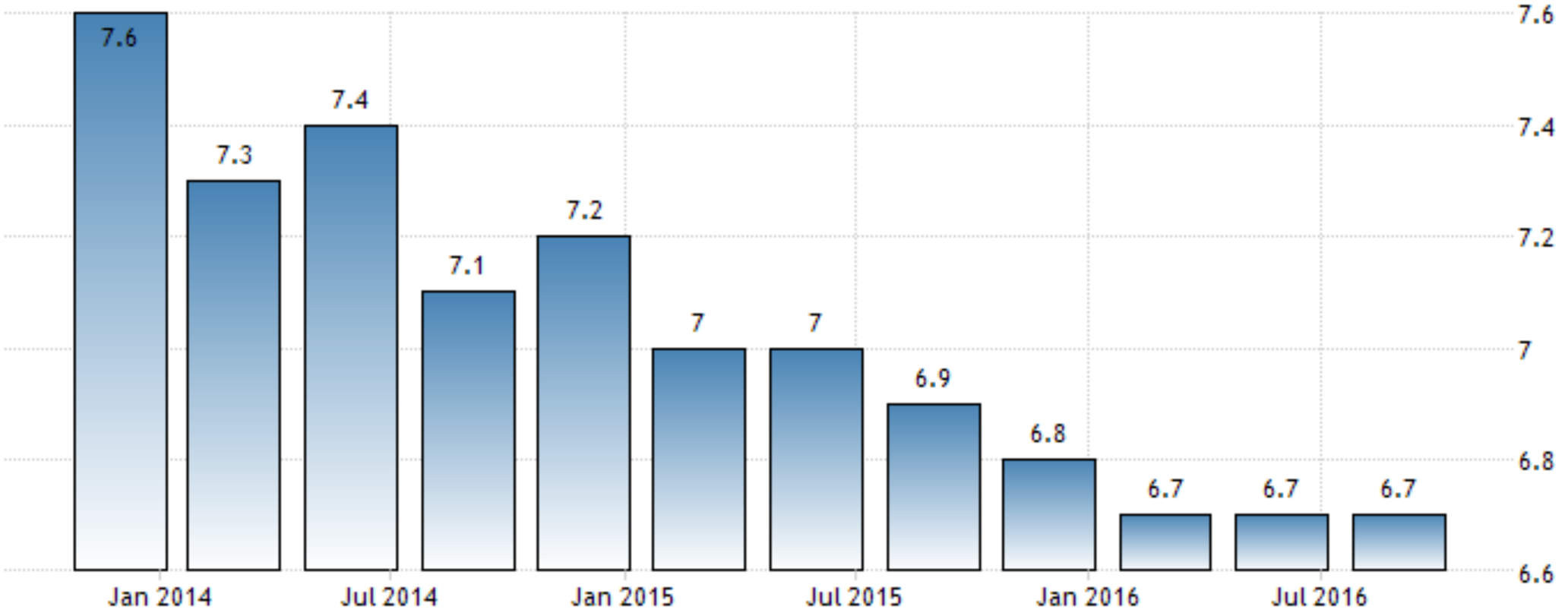
World GDP

Contribution to growth, percentage points, from:

*Estimates based on 48 economies representing 86% of world GDP.
Weighted GDP at purchasing-power parity

Sources: Haver Analytics; IMF; *The Economist*

CHINA GDP ANNUAL GROWTH RATE



SOURCE: WWW.TRADINGECONOMICS.COM | NATIONAL BUREAU OF STATISTICS OF CHINA

Paris is one of the world's most vibrant cities, bustling with hundreds of thousands of people. At least, the one in France is. The meticulously built replica city in China – not so much. Tianducheng, in China's Zhejiang district, was modeled after the real Paris, complete with a 354-foot replica of the Eiffel Tower as well as other landmarks. Intended to be a luxurious gated community that could house 100,000 and draw rural families into a centralized urban location, the city has been a ghost town since its construction in 2007. Only about 2,000 people moved there, and that small number seems to be dwindling by the day. But work is still in progress, and officials are hoping to get more people there before the whole complex is totally complete in 2015.

http://weburbanist.com/2013/12/18/ghost-cities-of-china-7-eerie-abandoned-wonders/

http://www.xe.com/currencycharts/?from=GBP&to=USD&view=10Y

GBP to USD Chart

23 Sep 2016 11:00 UTC - 23 Oct 2016 11:34 UTC **GBP/USD** close:**1.22370** low:**1.21145** high:**1.30498**

http://www.xe.com/currencycharts/?from=GBP&to=USD&view=1M


Baltic Dry Index
10000
8000
6000
4000
2000
652
0
1985-1989
1990-1994
1995-1999
2000-2004
2005-2009
2010-2014

Business

Hanjin Shipping bankruptcy causes turmoil in global sea freight

Some vessels seized by authorities and creditors, with others refused entry to ports unload after South Korean company loses the support of banks

Staff and agencies in Los Angeles and Seoul

Friday 2 September 2016
04.32 BST

This article is 1 month old

Shares 4721 Comments 236

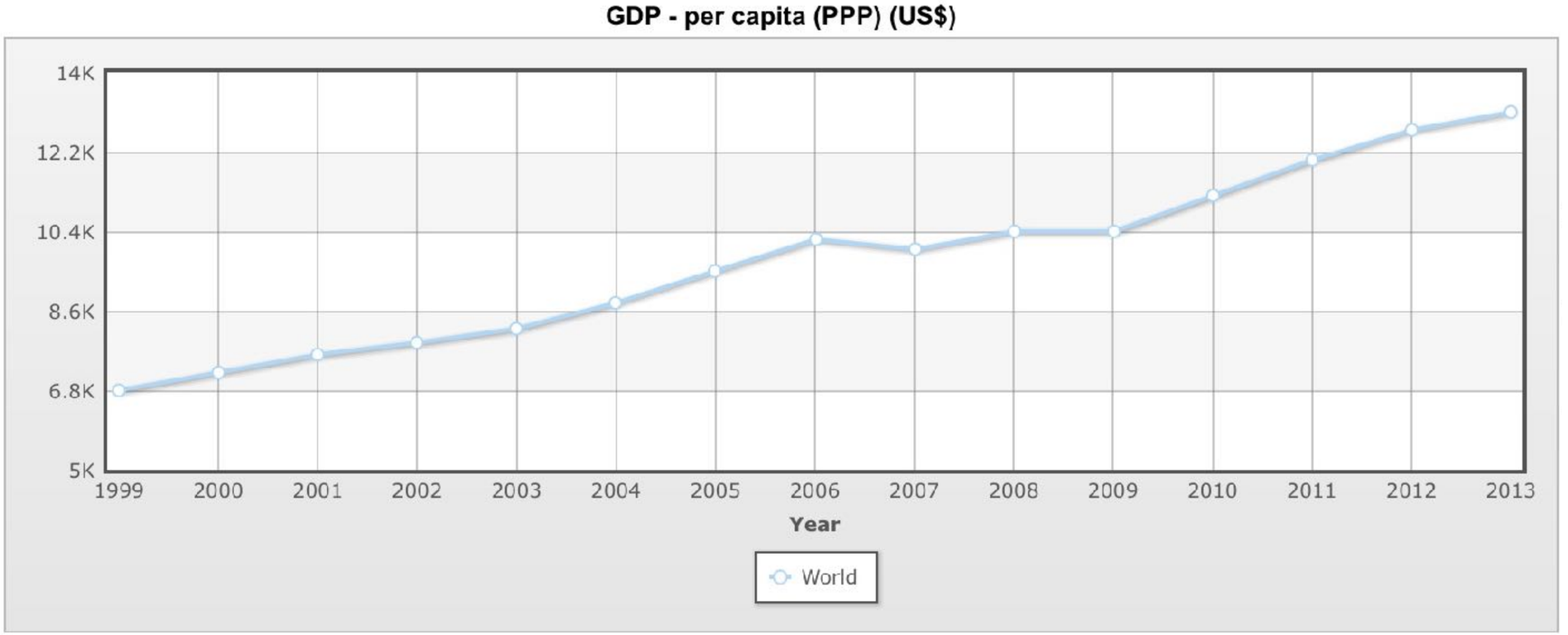
Save for later

The Hanjin Montevideo anchored outside the Port of Long Beach, California, after the company went bankrupt. Photograph: Damian Dovarganes/AP

The bankruptcy of the Hanjin shipping line has thrown ports and retailers around

https://www.theguardian.com/business/2016/sep/02/hanjin-shipping-bankruptcy-causes-turmoil-in-global-sea-freight

http://www.profitconfidential.com/tag/gold-price-forecast/



Country	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
World	6,800	7,200	7,600	7,900	8,200	8,800	9,500	10,200	10,000	10,400	10,400	11,200	12,000	12,700	13,100

Definition of GDP - per capita (PPP): This entry shows GDP on a purchasing power parity basis divided by population as of 1 July for the same year.

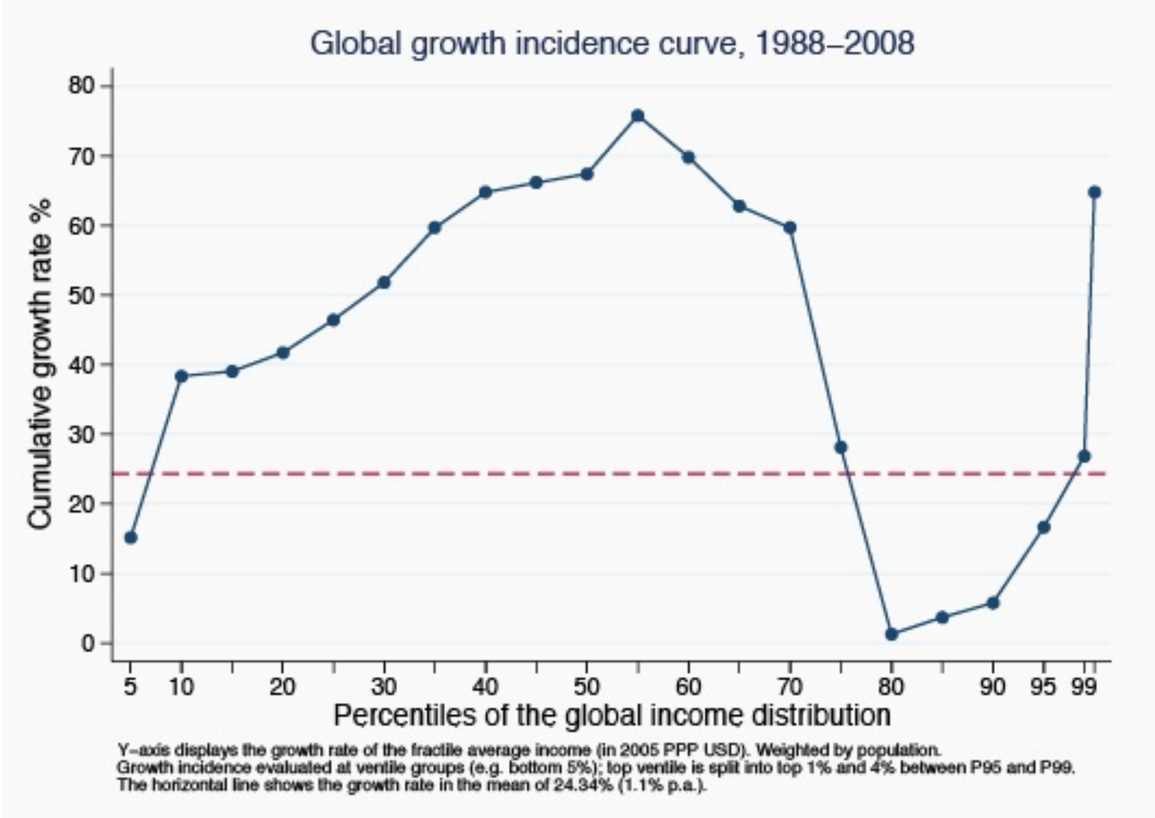
Source: CIA World Factbook - Unless otherwise noted, information in this page is accurate as of June 30, 2015

Table 2.5: Per capita output growth since the industrial revolution

Average annual growth rate	**Per capita world output**	Europe	America	Africa	Asia
0-1700	**0.0%**	0.0%	0.0%	0.0%	0.0%
1700-2012	**0.8%**	1.0%	1.1%	0.5%	0.7%
incl.: 1700-1820	**0.1%**	0.1%	0.4%	0.0%	0.0%
1820-1913	**0.9%**	1.0%	1.5%	0.4%	0.2%
1913-2012	**1.6%**	1.9%	1.5%	1.1%	2.0%
1913-1950	**0.9%**	0.9%	1.4%	0.9%	0.2%
1950-1970	**2.8%**	3.8%	1.9%	2.1%	3.5%
1970-1990	**1.3%**	1.9%	1.6%	0.3%	2.1%
1990-2012	**2.1%**	1.9%	1.5%	1.4%	3.8%
1950-1980	**2.5%**	3.4%	2.0%	1.8%	3.2%
1980-2012	**1.7%**	1.8%	1.3%	0.8%	3.1%

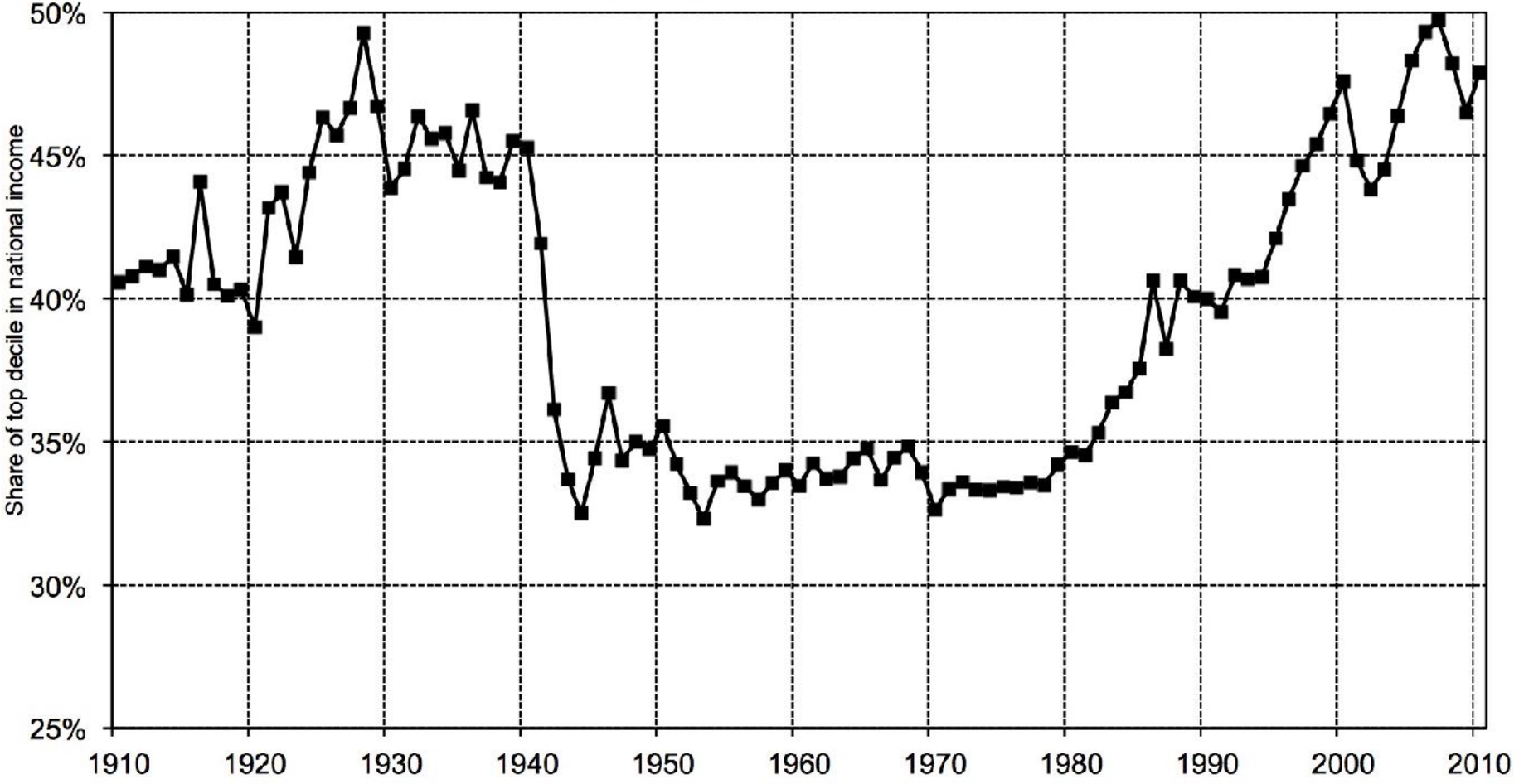
Between 1910 and 2012, the growth rate of per capita output was 1.7% per year on average at the world level, including 1.9% in Europe, 1.6% in America, etc.

Sources: see piketty.pse.ens.fr/capital21c



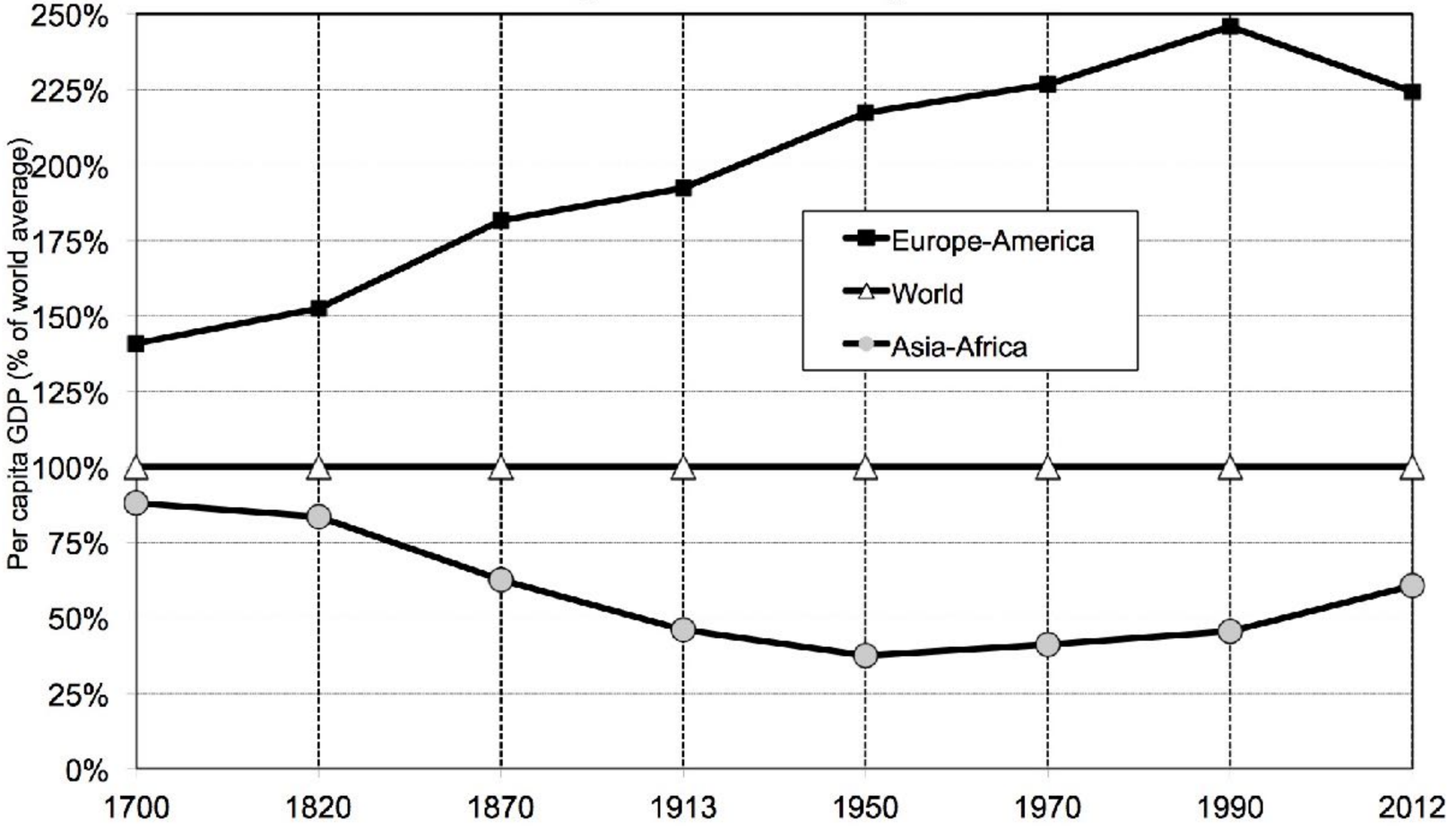
http://blogs.worldbank.org/developmenttalk/global-income-distribution-fall-berlin-wall-great-recession

Figure I.1. Income inequality in the United States, 1910-2010



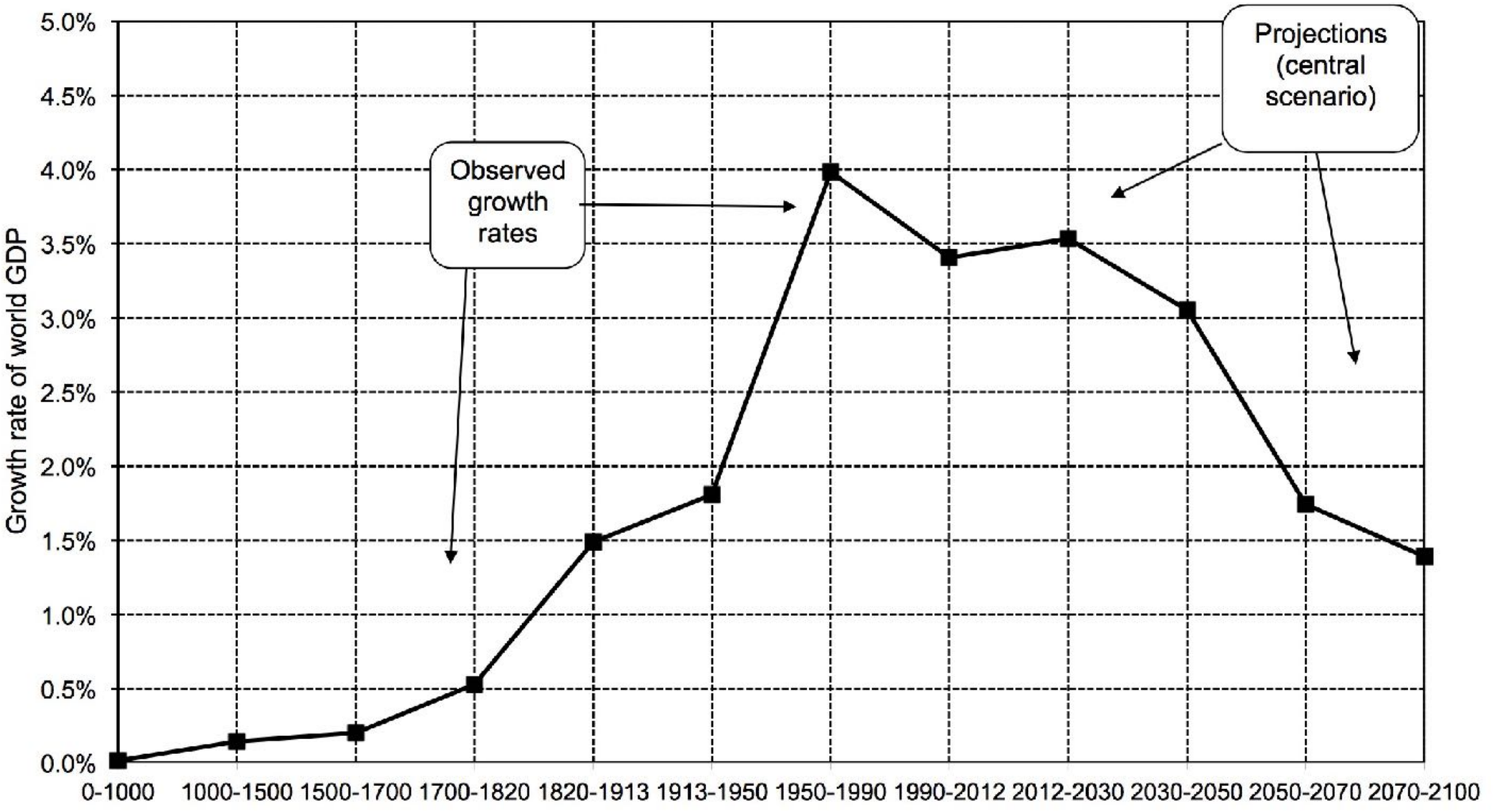
The top decile share in U.S. national income dropped from 45-50% in the 1910s-1920s to less than 35% in the 1950s (this is the fall documented by Kuznets); it then rose from less than 35% in the 1970s to 45-50% in the 2000s-2010s. Sources and series: see piketty.pse.ens.fr/capital21c.

Figure 1.3. Global inequality 1700-2012: divergence then convergence?



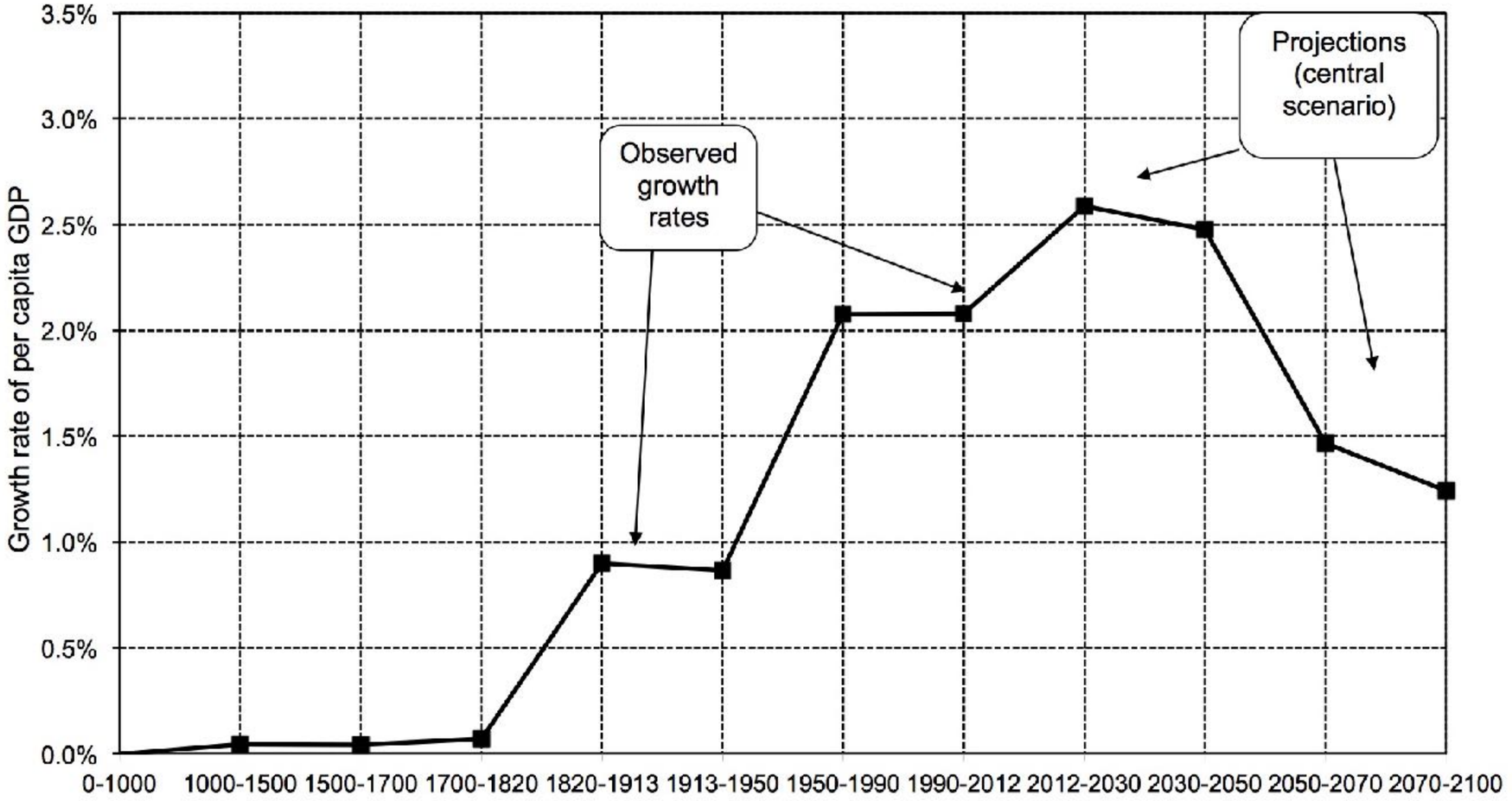
Per capita GDP in Asia-Africa went from 37% of world average in 1950 to 61% in 2012.
Sources and series: see piketty.pse.ens.fr/capital21c.

Figure 2.5. The growth rate of world output from Antiquity until 2100



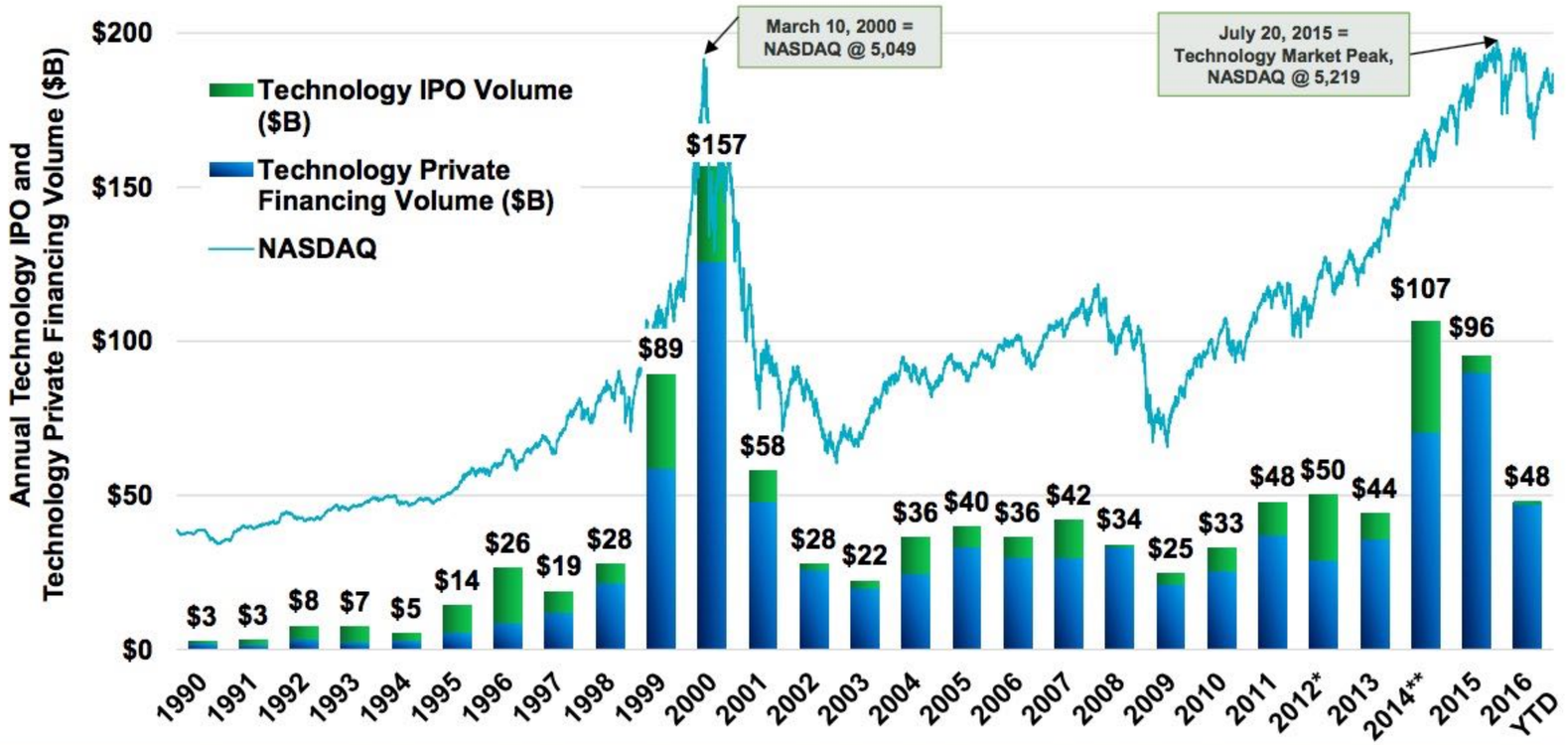
The growth rate of world output surpassed 4% from 1950 to 1990. If the convergence process goes on it will drop below 2% by 2050. Sources and series: see piketty.pse.ens.fr/capital21c.

Figure 2.4. The growth rate of world per capita output since Antiquity until 2100



The growth rate of per capita output surpassed 2% from 1950 to 2012. If the convergence process goes on, it will surpass 2.5% from 2012 to 2050, and then will drop below 1.5%.
Sources and series : see piketty.pse.ens.fr/capital21c.

Global US-Listed Technology IPO Issuance and Global Technology Venture Capital Financing, 1990 – 2016YTD

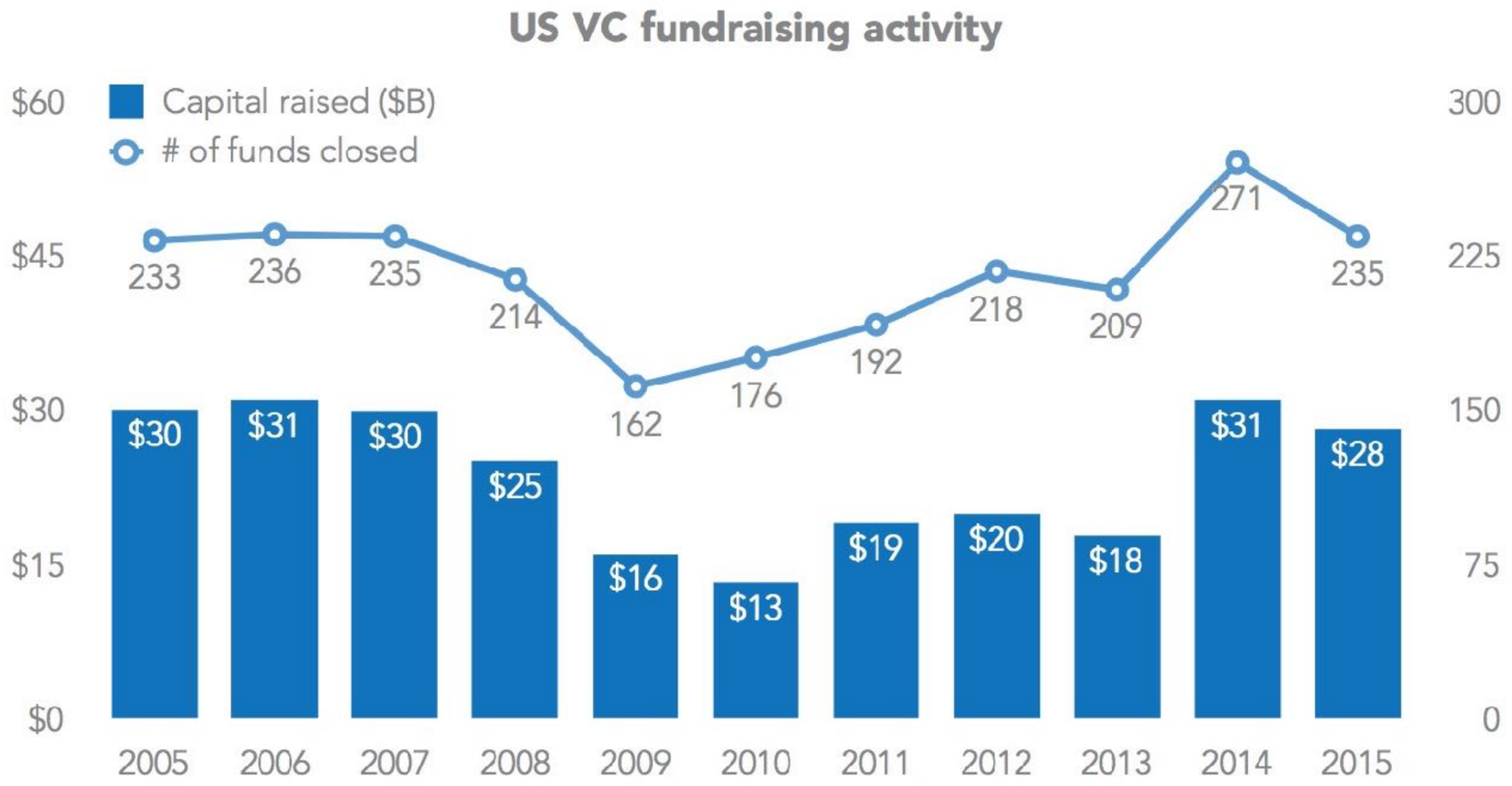


VC Funding per Company ($MM)	$3	$3	$2	$5	$4	$4	$5	$5	$6	$8	$14	$18	$11	$8	$8	$9	$8	$9	$8	$9	$7	$7	$10	$8	$9	$13	$15	$16

@KPCB

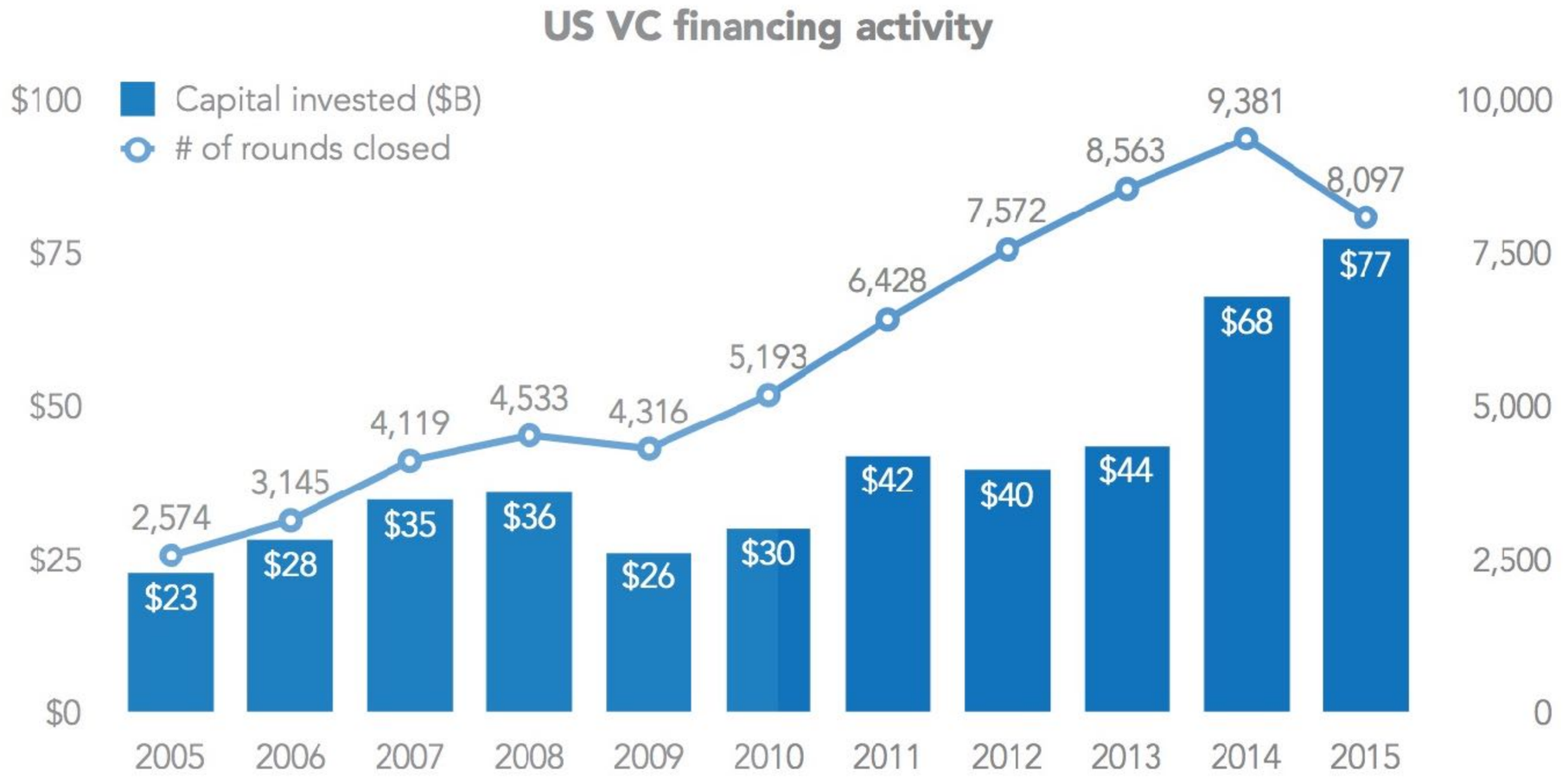
*Facebook ($16B IPO) = 75% of 2012 IPO $ value. **Alibaba ($25B IPO) = 69% of 2014 IPO $ value.
Source: Thomson ONE, 2016YTD as of 5/26/16. VC Funding per Company ($MM) calculated as total venture financing per year divided by number of companies receiving venture financing.
Morgan Stanley Equity Capital Markets, 2016YTD as of 5/26/16. All global U.S.-listed technology IPOs over $30MM, data per Dealogic, Bloomberg, & Capital IQ.

LP contributions to the VC industry are back to pre-recession leve and anecdotally 2016 seems likely to increase further



Source: Dow Jones VentureSource; Upfront analysis.

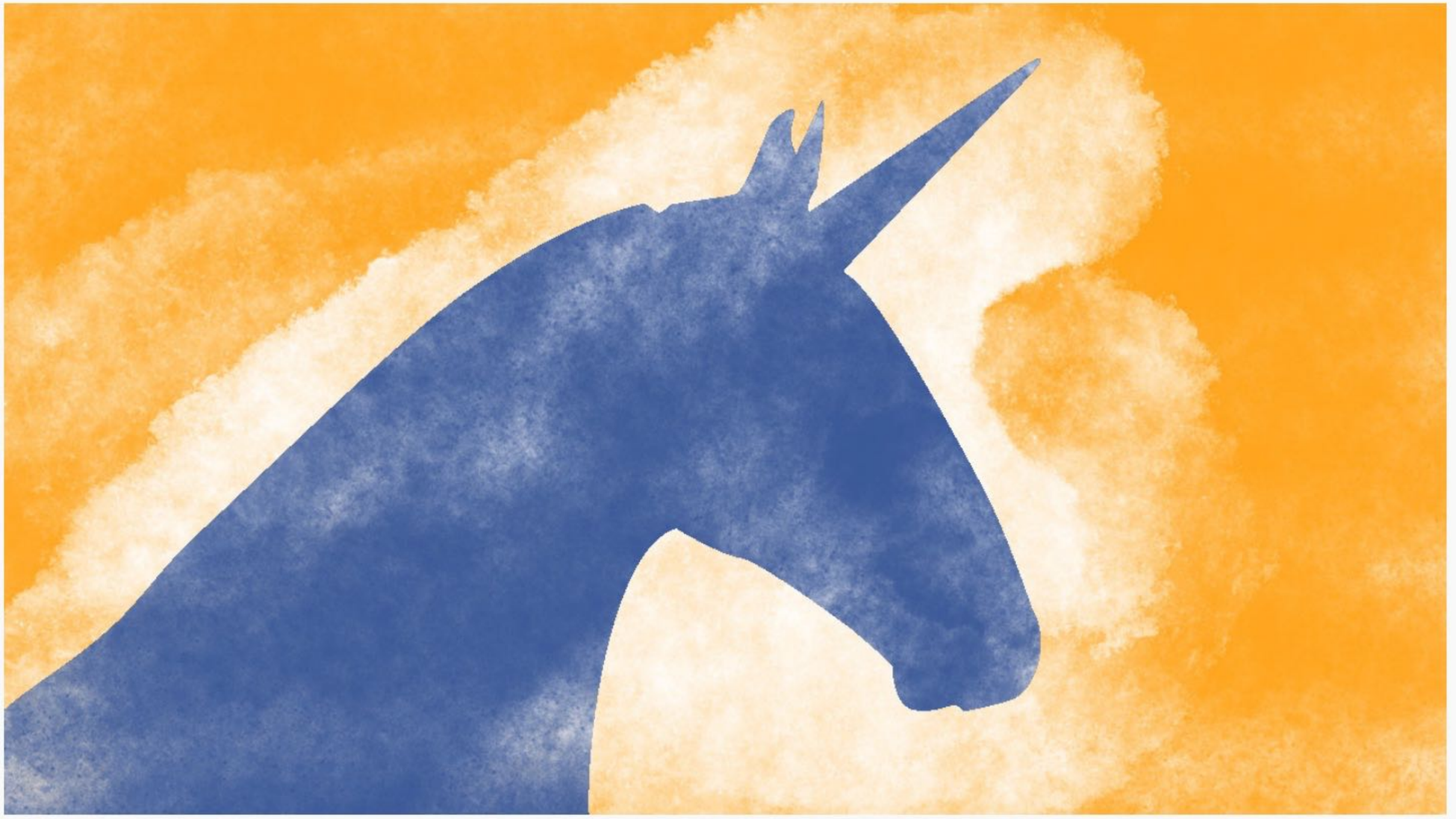
With more money (and new non VC entrants) venture financings have obviously increased. 2015 was an enormous year (2x pre recession)



Source: PitchBook 2015 Annual U.S. Venture Industry Report; Upfront analysis.

Welcome To The Unicorn Club: Learning From Billion-Dollar Startups

*Posted Nov 2, 2013 by **Aileen Lee** (**@aileenlee**), Contributor*



Learnings to date about the "Unicorn Club":

1. We found **39 companies belong to what we call the "Unicorn Club"** (by our definition, U.S.-based software companies started since 2003 and valued at over $1 billion by public or private market investors). That's **about .07 percent of venture-backed consumer and enterprise software startups.**

2. On average, **four unicorns were born per year** in the past decade, with **Facebook** being the breakout **"super-unicorn"** (worth >$100 billion). In each recent decade, 1-3 super unicorns have been born.

3. **Consumer-oriented unicorns have been more plentiful** and created more value in aggregate, even excluding Facebook.

4. But **enterprise-oriented unicorns have become worth more on average**, and raised much less private capital, delivering a **higher return on private investment**.

5. Companies fall somewhat evenly into **four major business models**: consumer e-commerce, consumer audience, software-as-a-service, and enterprise software.

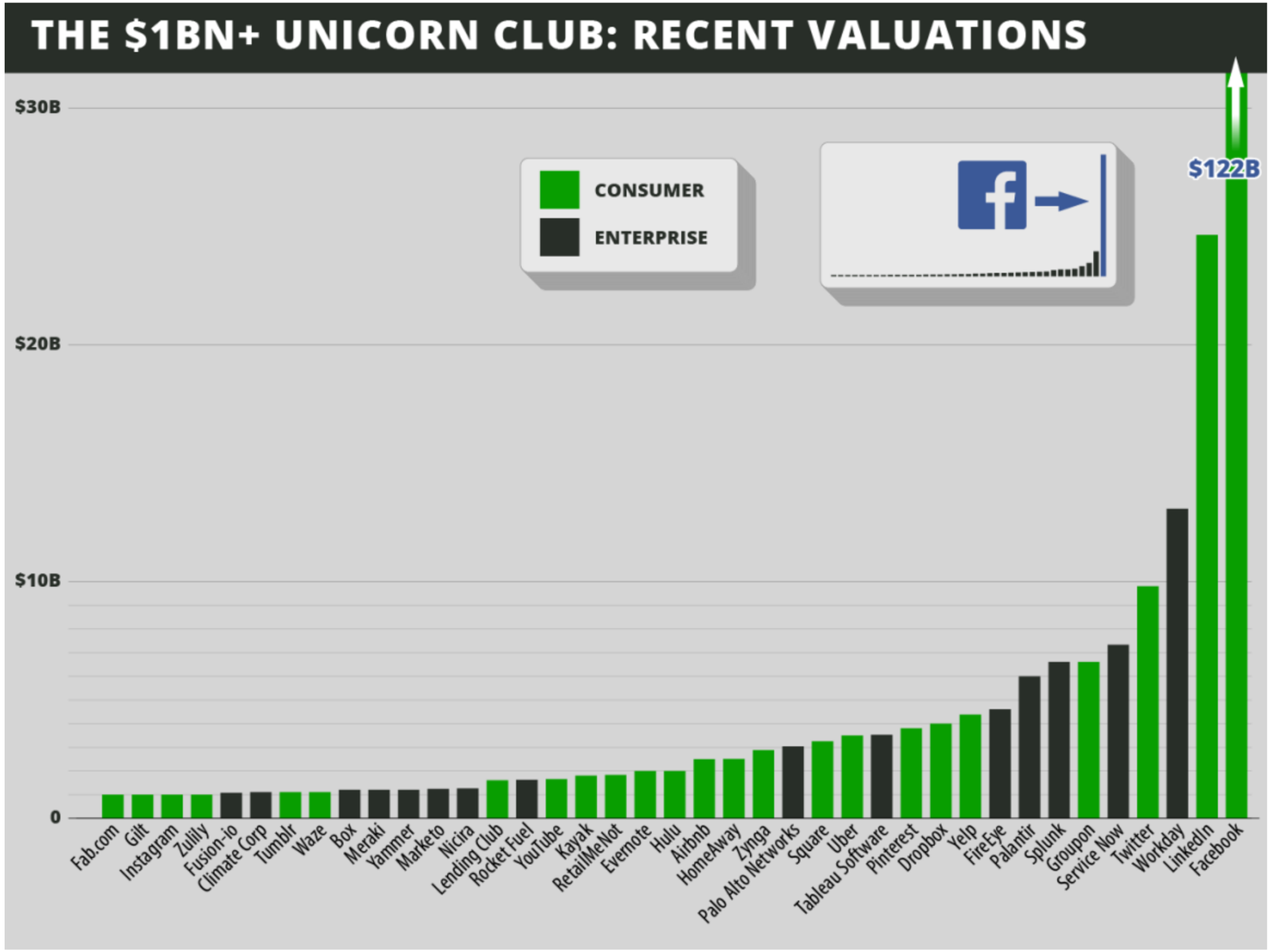
6. It has taken **seven-plus years on average before a "liquidity event"** for companies, not including the **third of our list that is still private**. It's a long journey beyond vesting periods.

7. Inexperienced, **twentysomething founders were an outlier**. Companies with **well-educated, thirtysomething co-founders who have history together** have built the most successes

8. The **"big pivot"** after starting with a different initial product **is an outlier**.

9. **San Francisco** (not the Valley) **now reigns** as the **home of unicorns**.

10. There is **very little diversity among founders** in the Unicorn Club.


THE $1BN+ UNICORN CLUB: RECENT VALUATIONS
$30B
$20B
$10B
0
CONSUMER
ENTERPRISE
$122B
Fab.com
Gilt
Instagram
Zulily
Fusion-io
Climate Corp
Tumblr
Waze
Box
Meraki
Yammer
Marketo
Nicira
Lending Club
Rocket Fuel
YouTube
Kayak
RetailMeNot
Evernote
Hulu
Airbnb
HomeAway
Zynga
Palo Alto Networks
Square
Uber
Tableau Software
Pinterest
Dropbox
Yelp
FireEye
Palantir
Splunk
Groupon
Service Now
Twitter
Workday
LinkedIn
Facebook

Welcome To The Unicorn Club, 2015: Learning From Billion-Dollar Companies

*Posted Jul 18, 2015 by **Aileen Lee** (@aileenlee)*

Summary Of Our Updated Analysis

1) We found **84 U.S.-based companies belong to what we call the "unicorn club,"** a jaw-dropping 115% increase from our last post. The increase is driven largely by "**paper unicorns**" – private companies that have not yet had a "liquidity event." But, these companies are still a super-rarity: our list is just .**14% of venture-backed consumer and enterprise tech startups**.

2) On average, **eight unicorns were born per year** in the past decade (versus four in the 2003-2013 era). There's **not yet a super-unicorn** ($100 billion-plus in value) born from the 2005-2015 decade, but **there are now nine "decacorns"** ($10 billion-plus in value), 3x our last post.

3) **Consumer-oriented companies drive the majority of value in our set**: more companies and higher average value per company. **They raise *a lot* of private capital**.

4) **Enterprise-oriented companies are fewer and raise less private capital**; and increased enterprise fundraising has **reduced their return on private dollars raised.**

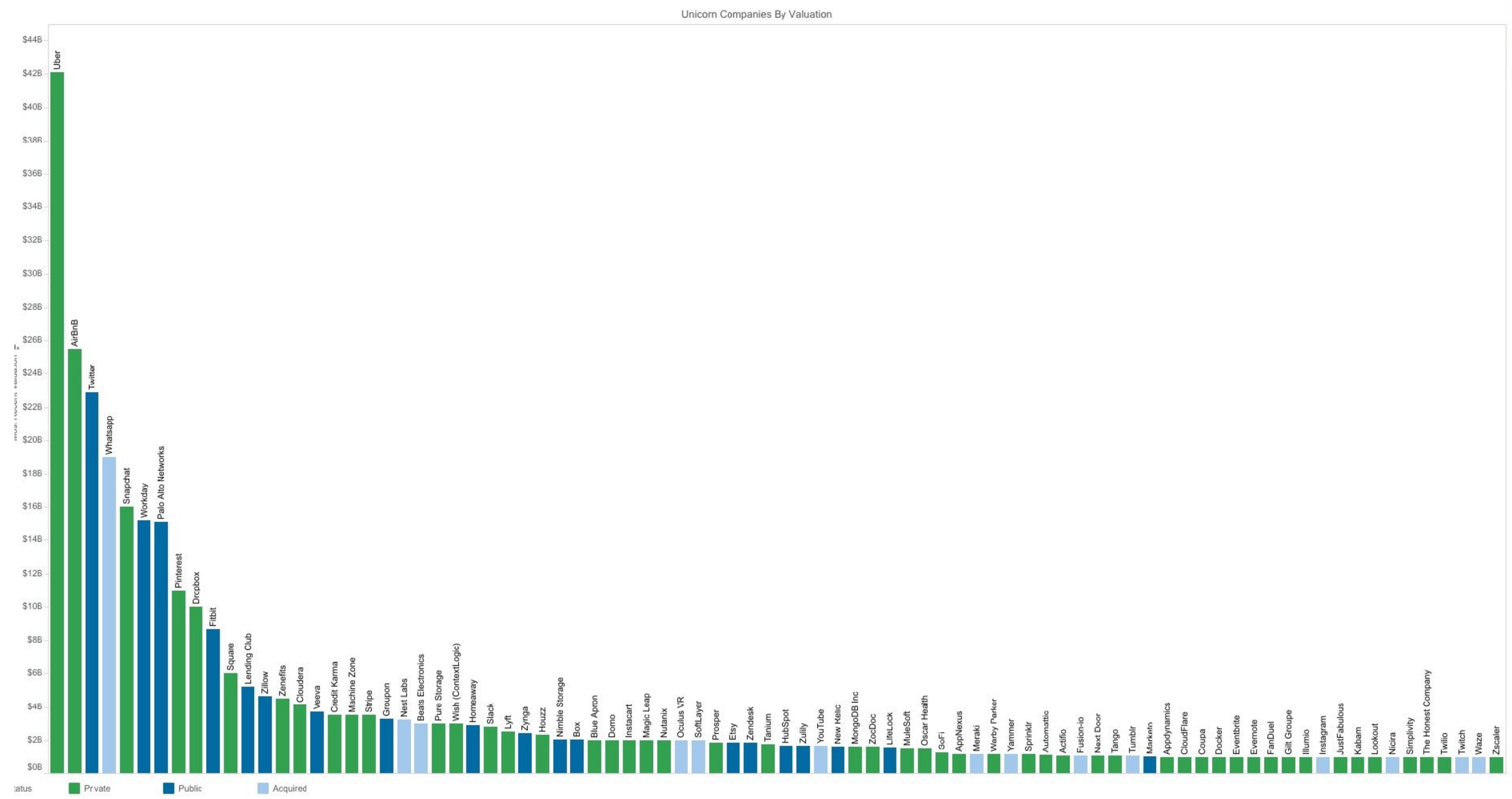
5) **In terms of business models, e-commerce companies drive the majority of value in our set, but have the lowest "capital efficiency.**" Enterprise and audience companies have decreased in market share of our set, while **SaaS companies have grown in market share** significantly. We've also added a new category: Internet of Things/consumer electronics.

6) It's a long journey, beyond vesting periods: it has taken ~**7 years on average before a "liquidity event"** for the 39% who have 'exited' – not including the 61% of our list that is still private. The **capital efficiency of these "private unicorns" is surprisingly low,** which will likely impact future returns for founders, investors and employees.

7) Take heart, "old people" of Silicon Valley: **Companies with educated, tech-savvy, experienced 30-something, co-founding teams with history together** have built the most successes. Twenty-something founders and successful pivots are the minority; dedicated CEOs who are able to scale their companies for the long haul are not.

8) **San Francisco maintains dominance** as the new epicenter of the Bay Area's most valuable tech companies; cities like **NYC and L.A. are growing in importance**

- **We identified 84 companies for our set** (by our definition, U.S.-based, VC-backed software and Internet-oriented companies founded since 2005 and valued at over $1 billion by public or private market investors[1]). **That's a staggering 115% increase since our last analysis** just a year-and-a-half ago.
- The total **value of these companies is $327 Billion – 2.4x our last analysis** (excluding Facebook, which was almost half the value of our last list).
- **It's the number of companies**, not their individual valuations**, driving the dramatic increase** in total value. The average company value on our list is worth $3.9 billion, just an ~8% increase from last time.
- **And it's the number of "paper unicorns"** that has dramatically increased the total value. Private companies are now 61% (vs 36%) of our list, worth $188 billion in total and $3.7 billion on average.
- **Why so many more 'unicorn' companies now versus 2013**? Some thoughts:


Unicorn Companies By Valuation
$44B
$42B
$40B
$38B
$36B
$34B
$32B
$30B
$28B
$26B
$24B
$22B
$20B
$18B
$16B
$14B
$12B
$10B
$8B
$6B
$4B
$2B
$0B
Uber
AirBnB
Twitter
Whatsapp
Snapchat
Workday
Palo Alto Networks
Pinterest
Dropbox
Fitbit
Square
Lending Club
Zillow
Zenefits
Cloudera
Veeva
Credit Karma
Machine Zone
Stripe
Groupon
Nest Labs
Beats Electronics
Pure Storage
Wish (ContextLogic)
Homeaway
Slack
Lyft
Zynga
Houzz
Nimble Storage
Box
Blue Apron
Domo
Instacart
Magic Leap
Nutanix
Oculus VR
SoftLayer
Prosper
Etsy
Zendesk
Tanium
HubSpot
Zuilly
YouTube
New Relic
MongoDB Inc
ZocDoc
LifeLock
MuleSoft
Oscar Health
SoFi
AppNexus
Meraki
Warby Parker
Yammer
Sprinklr
Automattic
Actifio
Fusion-io
Next Door
Tango
Tumblr
Marketo
Appdynamics
CloudFlare
Coupa
Docker
Eventbrite
Evernote
FanDuel
Gilt Groupe
Illumio
Instagram
JustFabulous
Kabam
Lookout
Nicira
Simplivity
The Honest Company
Twilio
Twitch
Waze
Zscaler
atus
Private
Public
Acquired
+ableau

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Funding Rounds (7) - $590.5M

UPDATE

Date	Amount / Round	Valuation	Lead Investor	Investors
Oct, 2014	$150M / Series E	$6B	GIC	5
Apr, 2014	$100M / Debt Financing	—	—	5
Sep, 2012	$200M / Series D	$3.25B	—	4
Dec, 2011	$3M / Series C	—	Richard Branson	2
Jun, 2011	$100M / Series C	—	Kleiner Perkins Caufield & Byers	2
Jan, 2011	$27.5M / Series B	—	Sequoia Capital	3
Nov, 2009	$10M / Series A	—	Khosla Ventures	20

Investors (38)

MARKETS | STOCKS | IPOS

Square's $9-a-Share Price Deals Blow to IPO Market

Offering is seen as an important test for battered market for new tech stocks

Jack Dorsey is CEO of both Square and Twitter. *PHOTO: JUSTIN TALLIS/AGENCE FRANCE-PRESSE/GETTY IMAGES*

Square is one of more than 120 private tech startups sporting valuations above $1 billion, according to Dow Jones VentureSource, and is one of the most valuable ones focused on financial technology.

MORE ON SQUARE

- Square Pays Penalty to Some Investors in IPO (Nov. 18)
- Square IPO Offers Up a Litmus Test (Nov. 17)
- Square's IPO Terms Put Valuation Below Latest Funding Round (Nov. 6)
- Square Reports Another Loss as IPO Roadshow Approaches (Oct. 26)
- Payments Startup Square Discloses IPO Plans (Oct. 14)

"This deal is representative of companies that are falling out of favor with investors," said Jeremy Abelson, portfolio manager at Irving Investors. "These are companies that are spending a lot to grow their top line but still have a tough path to profitability."

The price gives the company a market value of about $3 billion, which doesn't include any future shares issued to employees. The shares are set to begin trading Thursday morning on the New York Stock Exchange. Square declined to comment.

Square Inc

NYSE: SQ - Oct 14, 7:45 PM EDT

11.12 USD ↓0.07 (0.63%)

After-hours: 11.19 ↑0.63%

1 day | 5 day | 1 month | 3 months | **1 year** | 5 years | max

Open	11.24	**Mkt cap**	**3.77B**
High	11.35	P/E ratio	-
Low	11.07	Div yield	-

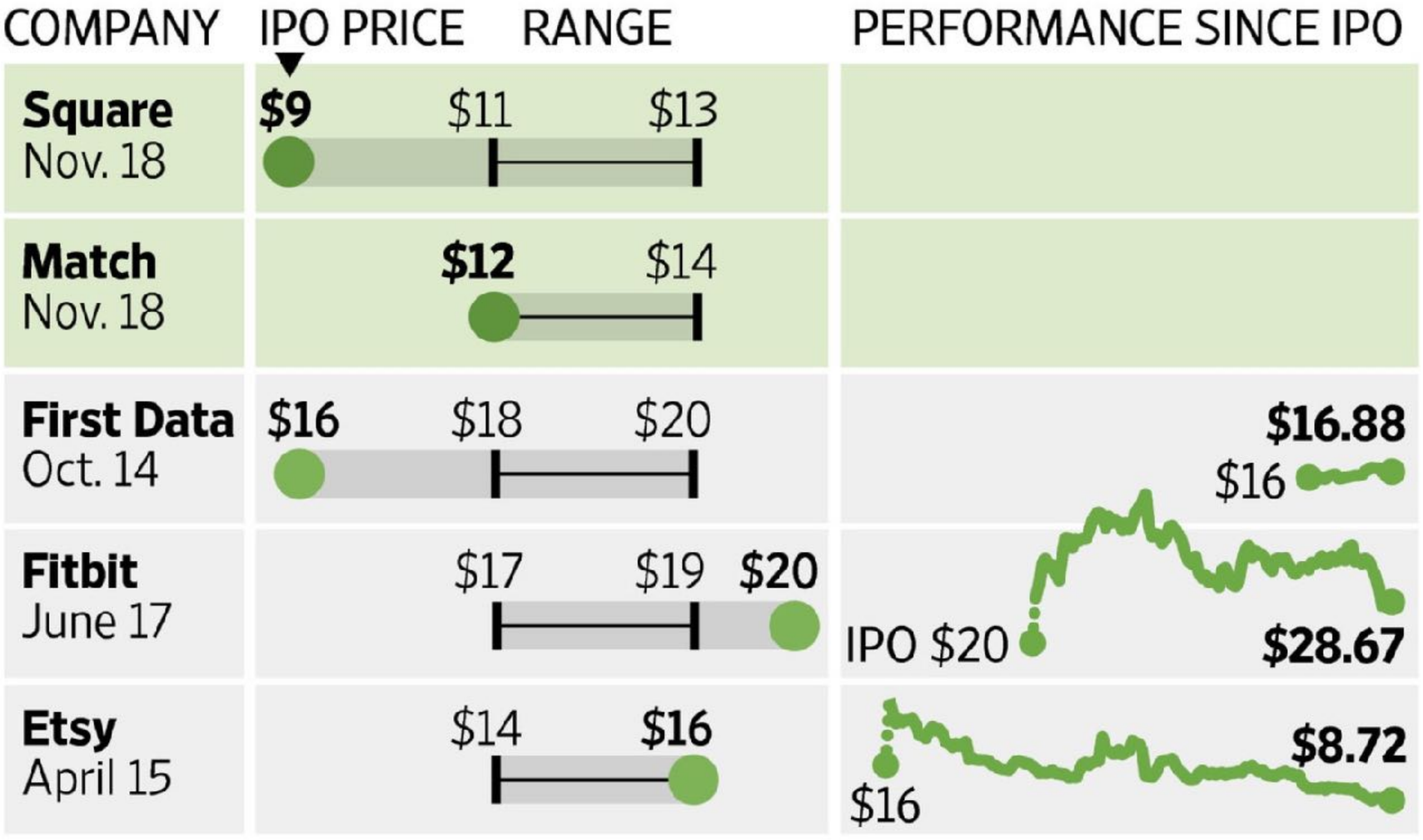
Google Finance - AOL Money - Yahoo Finance

Disclaimer

16/10/2016

Initial Public Misses

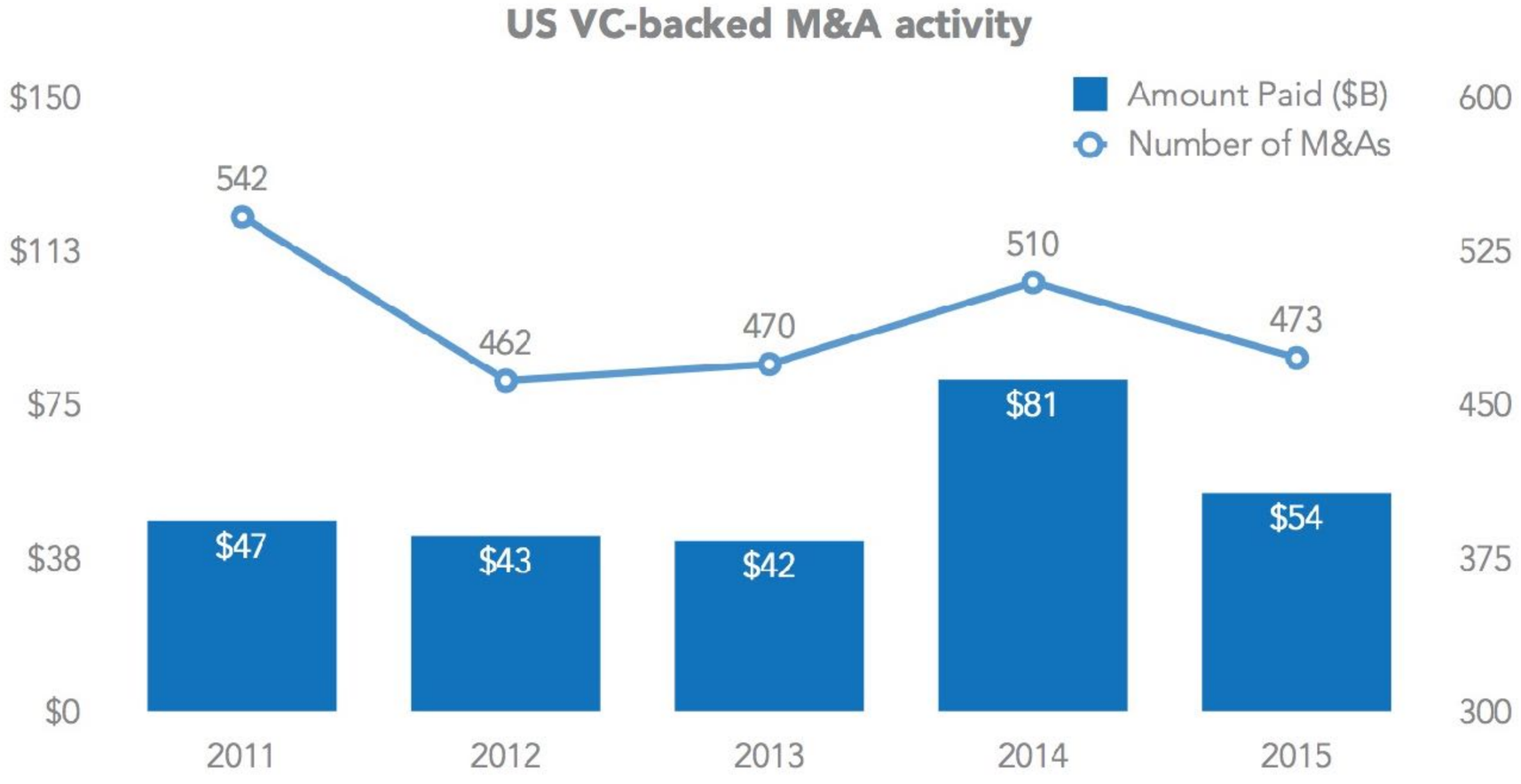
Several tech IPOs have come under pressure since they started trading earlier this year. The latest to price are Square and Match.



Sources: company fillings; people familiar with the deals (Square, Match); FactSet (share price)

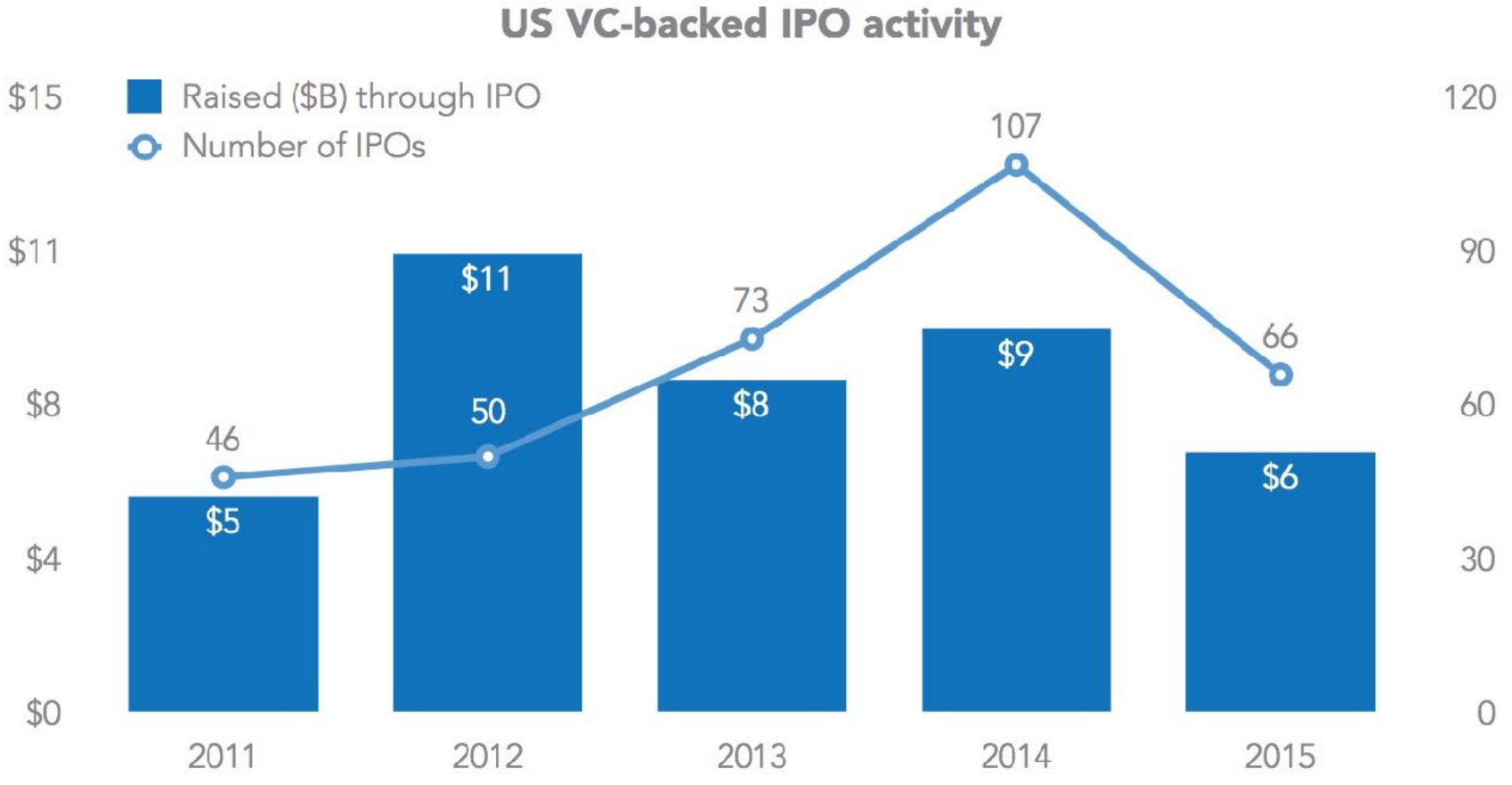
THE WALL STREET JOURNAL.

M&A pace hasn't matched the increases in funding pace so VC mark-ups have been good but cash distributions less so



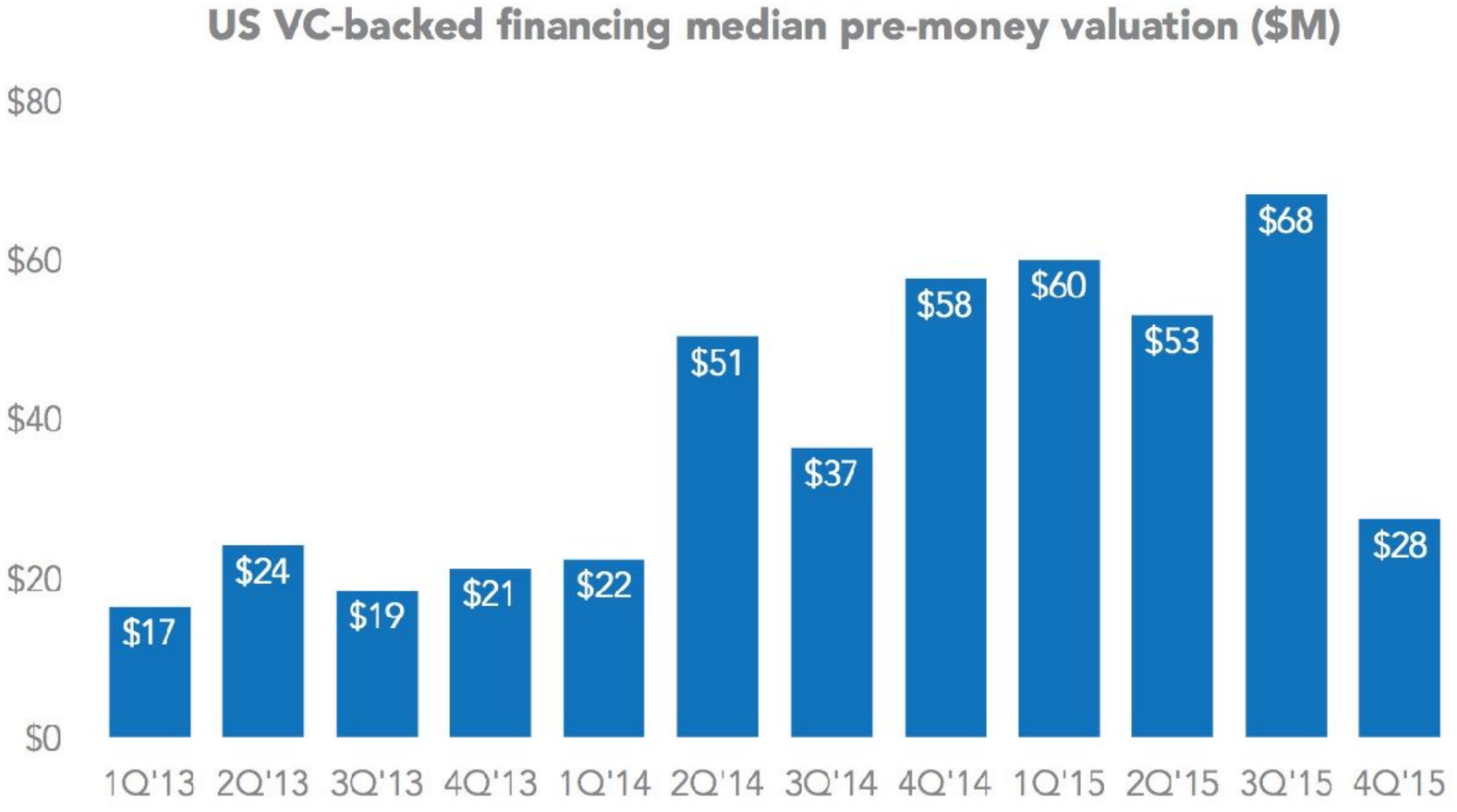
Source: Dow Jones VentureSource Venture Capital Report 4Q'15; Upfront analysis.

IPO exits are down 32% in volume and 38% in value



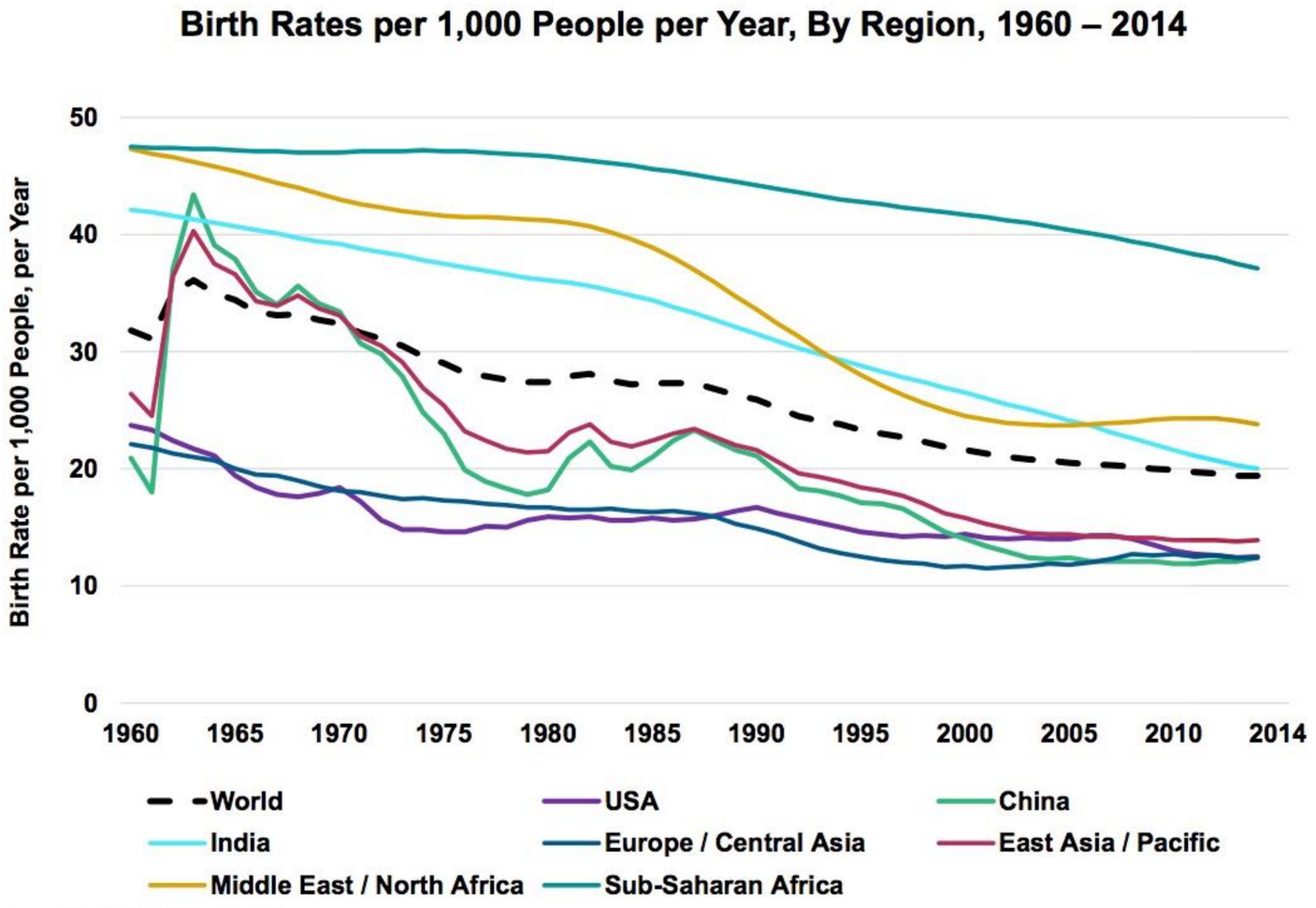
Source: Dow Jones VentureSource Venture Capital Report 4Q'15; Upfront analysis.

Private market valuations had risen beyond what some believe are sustainable (up 3x in 2 years). Q4 saw massive correction (we asked VCs if they thought it was an anomaly or a trend).



Source: Dow Jones VentureSource Venture Capital Report 4Q'15; Upfront analysis.

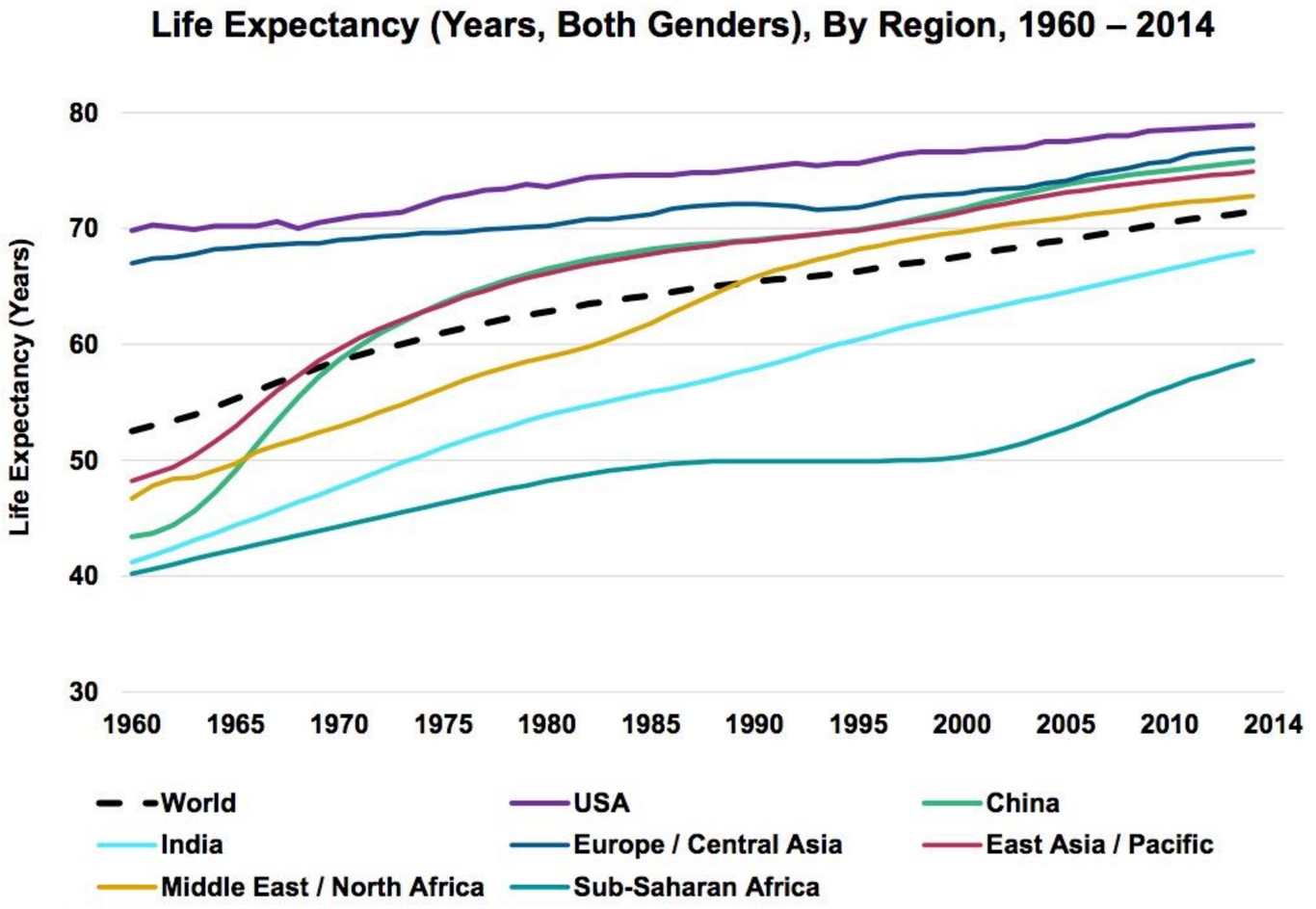
Global Birth Rates =
Down 39% Since 1960 (1% Annual Average Decline)



@KPCB

Source: World Bank World Development Indicators
Note: Represents birth rates per 1,000 people per year.

Global Life Expectancy @ 72 Years = Up 36% Since 1960 (0.6% Annual Average Increase)



@KPCB

Source: World Bank World Development Indicators

Adjusting to Slower Growth +
Higher Debt + Aging Population
Creates Rising Risks...

Creates Opportunities for Businesses that
Innovate / Increase Efficiency /
Lower Prices / Create Jobs –
Internet Can Be @ Core of This...


"Winter is Coming" message received by portfolio companies


R.I.P.
GOOD
TIMES

OUR TAKE

MANAGE WHAT YOU CAN CONTROL

- SPENDING
- GROWTH ASSUMPTIONS
- EARNINGS ASSUMPTIONS

FOCUS ON QUALITY

LOWER RISK

REDUCE DEBT

$2,663,332,677

total dollars pledged to Kickstarter projects

113,517

Successfully funded projects

11,777,436

Total backers

3,719,919

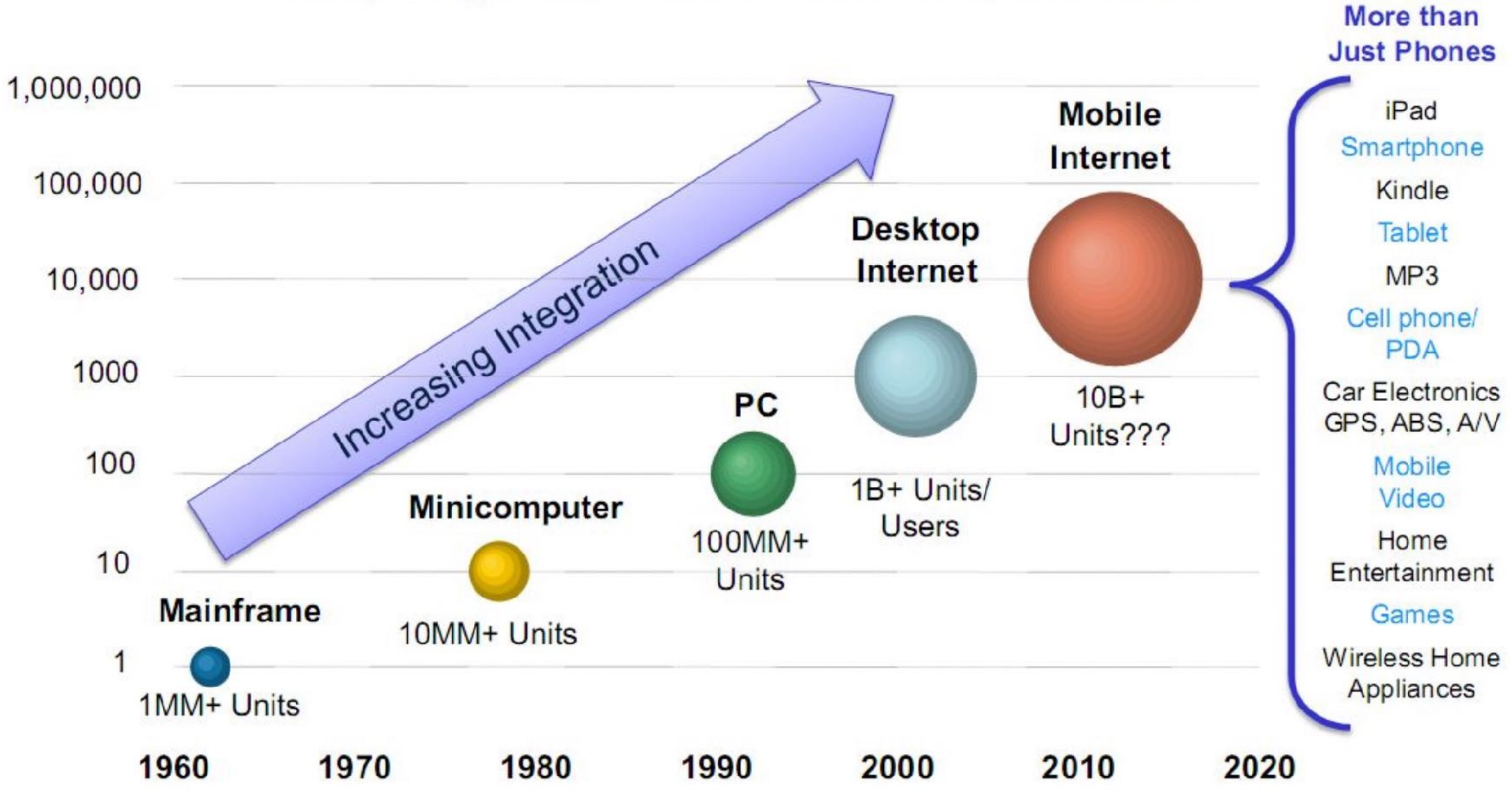
Repeat backers

33,574,411

Total pledges

Category	Successfully Funded Projects	Less than $1,000 Raised	$1,000 to $9,999 Raised	$10,000 to $19,999 Raised	$20,000 to $99,999 Raised	$100 K to $999,999 Raised	$1 M Raised
All	**113,517**	**13,635**	**65,117**	**16,186**	**15,156**	**3,230**	**193**
Music	24,019	2,357	17,283	3,081	1,239	58	1
Film & Video	21,498	2,408	12,262	3,401	3,100	321	6
Publishing	9,983	1,485	6,291	1,287	857	63	0
Art	9,539	2,093	6,033	869	502	40	2
Games	8,985	684	3,536	1,658	2,311	726	70
Design	7,586	492	2,596	1,349	2,324	786	39
Theater	5,952	832	4,350	489	264	17	0
Food	5,165	566	2,159	1,224	1,153	57	6
Technology	4,874	313	1,377	670	1,523	926	65
Comics	4,340	540	2,695	561	473	70	1
Fashion	4,154	436	1,926	772	877	140	3
Photography	2,856	532	1,631	405	274	14	0
Dance	2,080	195	1,642	184	58	1	0
Crafts	1,622	547	857	129	84	5	0
Journalism	864	155	479	107	117	6	0

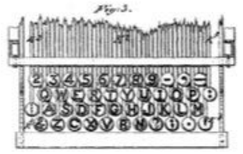
Computing Growth Drivers Over Time, 1960-2020E



Note: PC installed base reached 100MM in 1993, cellphone/Internet users reached 1B in 2002/2005 respectively;
Source: ITU, Mark Lipacis, Morgan Stanley Research.

Human-Computer Interaction (1830s – 2015), USA = Touch 1.0 → Touch 2.0 → Touch 3.0 → Voice

Punch Cards for Informatics
1832



QWERTY Keyboard
1872

Electromechanical Computer (Z3)
1941

Electronic Computer (ENIAC)
1943

Paper Tape Reader (Harvard Mark I)
1944

Mainframe Computers (IBM SSEC)
1948

Trackball
1952

Joystick
1967

Microcomputers (IBM Mark-8)
1974

Portable Computer (IBM 5100)
1975

Commercial Use of Window-Based GUI (Xerox Star)
1981

Commercial Use of Mouse (Apple Lisa)
1983

Commercial Use of Mobile Computing (PalmPilot)
1996

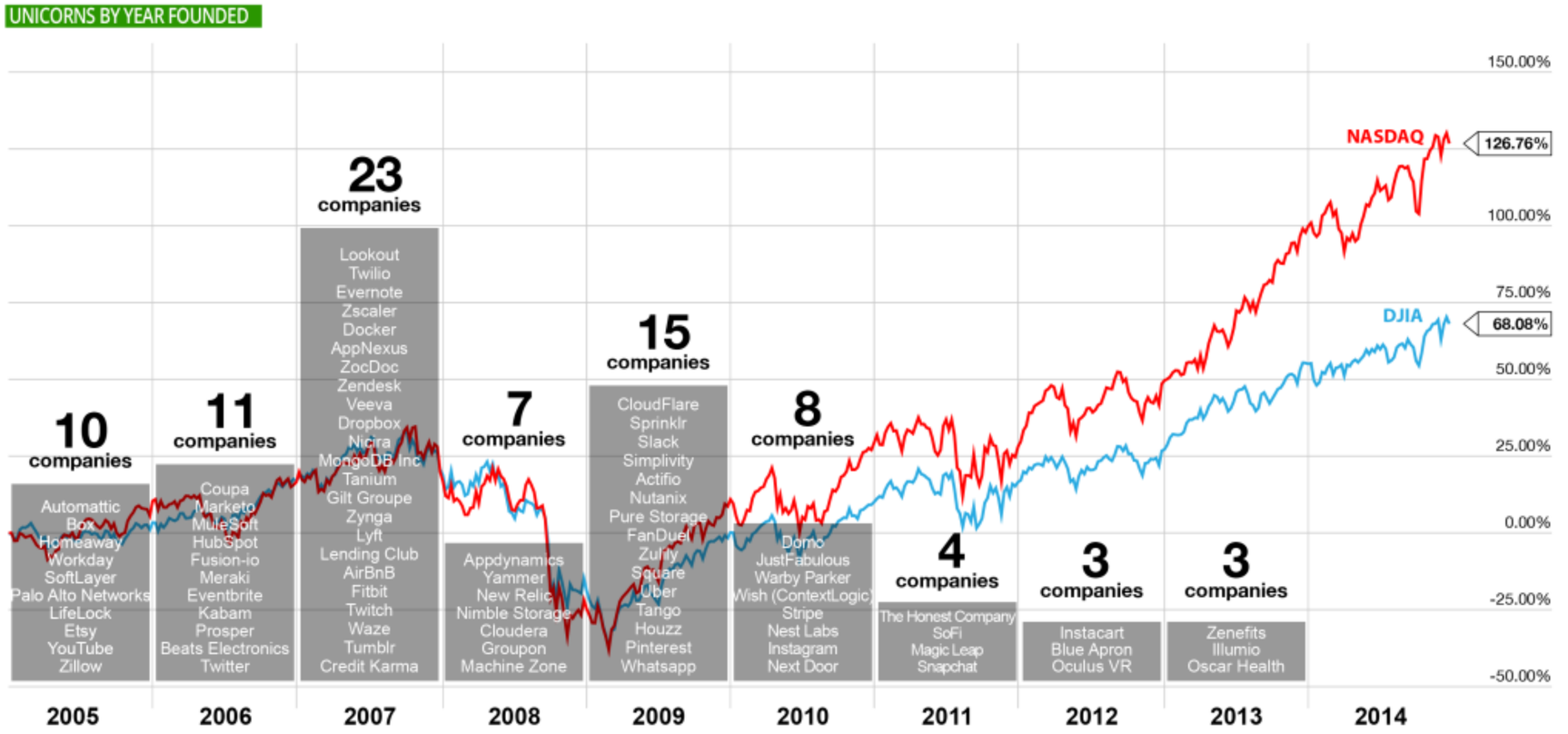
Touch + Camera - based Mobile Computing (iPhone 2G)
2007

Voice on Mobile (Siri)
2011

Voice on Connected / Ambient Devices (Amazon Echo)
2014

@KPCB

Source: University of Calgary, "History of Computer Interfaces" (Saul Greenberg)



https://techcrunch.com/2015/07/18/welcome-to-the-unicorn-club-2015-learning-from-billion-dollar-companies/

Outline Synopsis

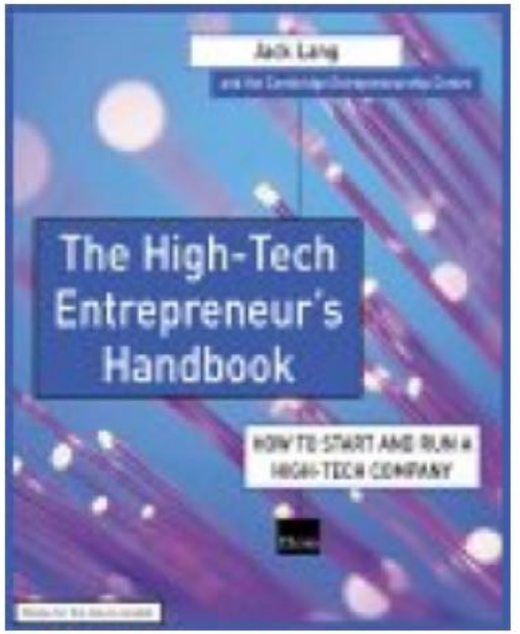
1. So you've got an idea…
2. Money and Tools for it's management
3. Legal aspects, contracts and copyright
4. People: How to organise a team
5. Project planning and management
6. Quality, maintenance and documentation
7. Marketing and Selling
8. Growth and Exit routes

Next term e-commerce, apps, electronic money, block chain, etc and 6 seminars in Easter term

Reading list

The High-tech Entrepreneur's Handbook
Jack Lang

Paperback - 224 pages (2 November, 2001) FT.COM; ISBN: 0273656155



Students will be expected to able to use Microsoft Excel and Microsoft Project

Reading list

- *Lecture 1: From idea to Business Plan*
- Cambridge Enterprise *Starting a Technology Company*: A guide for University staff and students
  Also online at http://www.enterprise.cam.ac.uk/building/starting.html

- Carter, M. (2004). *It's all cobblers! The one book to read before starting a business*. Cirencester: Management Books 2000.

- Rogers, E.M. (2003). *Diffusion of innovations.* London: Free Press.

- Segal Quince Wicksteed (1985). *The Cambridge phenomenon: the growth of high technology industry in a university town*. Cambridge: Segal Quince Wicksteed.

Reading list 2

- *Lecture 2: Money and tools for its management: raising the cash*

- Dyson, J.R. (2004). *Accounting for non-accounting students.* 6th ed. Harlow: Financial Times/Prentice Hall (or any basic accounting book)

- Varian, H.R. (2003). *Intermediate microeconomics: a modern approach.* 6th ed. New York: W.W. Norton.

- Shapiro, C. and Varian, H.R. (1998). *Information rules: a strategic guide to the network economy.* Boston, Mass.: Harvard Business School Press.

- Useful websites:
  http://www.bvca.co.uk
  http://www.etrade.co.uk
  http://www.londonstockexchange.com/en-gb/

Reading List 3

- *Lecture 3: Setting up and legal aspects*
- Manser, P. and Walker, S. (2002). *Tolley's start-ups: law and business handbook*. Croydon: Butterworths Tolley.
- Institute of Directors (1985). *Guidelines for directors*. 3rd ed. London: Director Publications.
- Useful websites:
  http://www.delphion.com/ (was the IBM patent search site)
  http://www.patent.gov.uk/ (UK Patent office)
  http://www.jordans.co.uk/ (company formation agents)
- http://www.solicitor.net/powers_and_duties.asp (there is a lot of good stuff on that site)

Reading List 4

- *Lecture 4: Project Planning and Management*

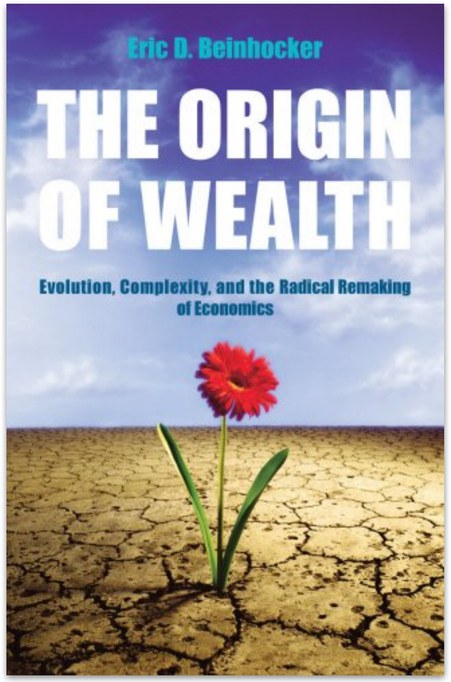
- Townsend, R. (1971). *Up the organisation: how to stop the corporation from stifling people and strangling profits*. New York: Knopf.

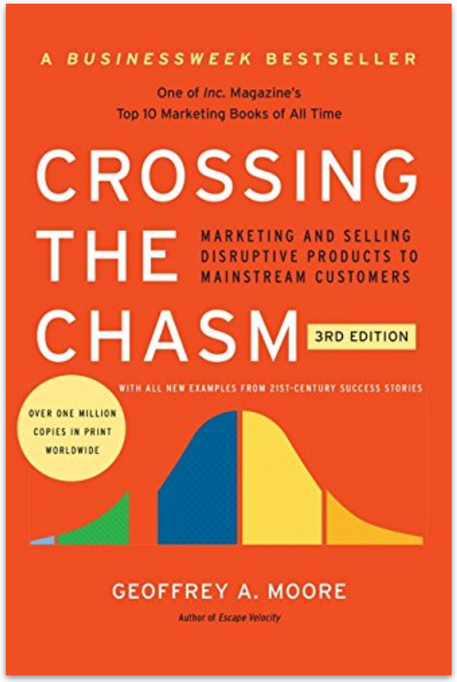
- Brooks, F. (1995). *The mythical man-month.* Boston, Mass.: Addison-Wesley Pub. Co.

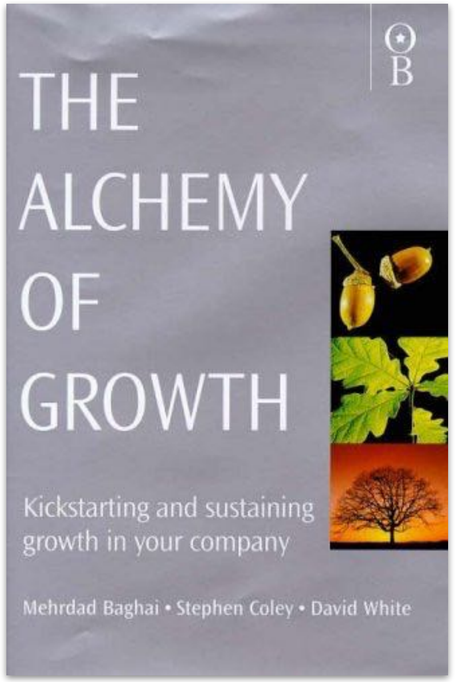
- Useful software: Microsoft Project.

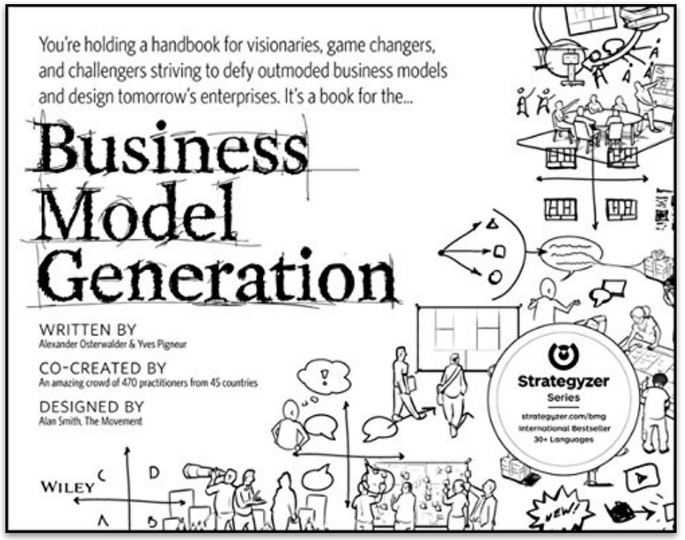
Reading List 5

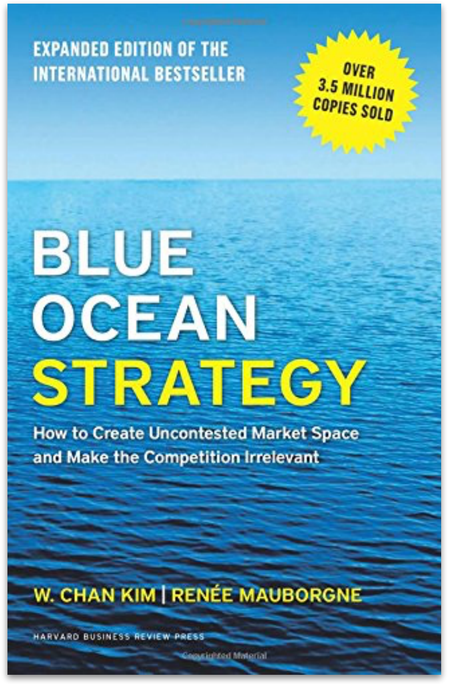
- *Lecture 5: Prototype to Product*
- Moore, G.A. (1998). *Crossing the chasm*. Oxford: Capstone.
- Moore, G.A. (1998). *Inside the tornado.* Oxford: Capstone.
- *Lecture 6: Standards, Quality, Documentation and Maintenance*
- British Standards Institute (2000). *Quality management systems: fundamentals and vocabulary*. ISO 9000:2000 London: British Standards Institute.
- British Standards Institute (2002). *Information security management: specification with guidance for use.* BS 7799-2:2002 London: British Standards Institute.
- http://standards.ieee.org/

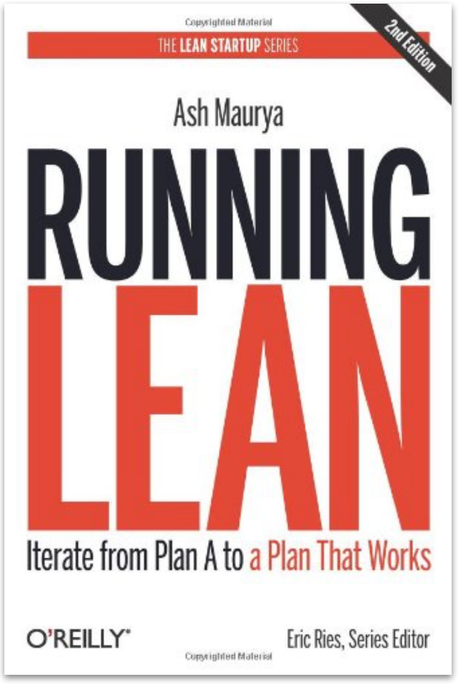

Eric D. Beinhocker
THE ORIGIN OF WEALTH
Evolution, Complexity, and the Radical Remaking of Economics

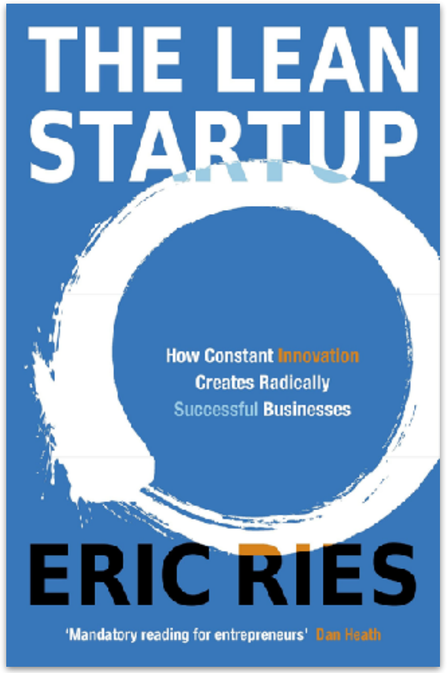

A BUSINESSWEEK BESTSELLER
One of Inc. Magazine's Top 10 Marketing Books of All Time
CROSSING THE CHASM
MARKETING AND SELLING DISRUPTIVE PRODUCTS TO MAINSTREAM CUSTOMERS
3RD EDITION
WITH ALL NEW EXAMPLES FROM 21ST-CENTURY SUCCESS STORIES
OVER ONE MILLION COPIES IN PRINT WORLDWIDE
GEOFFREY A. MOORE
Author of Escape Velocity

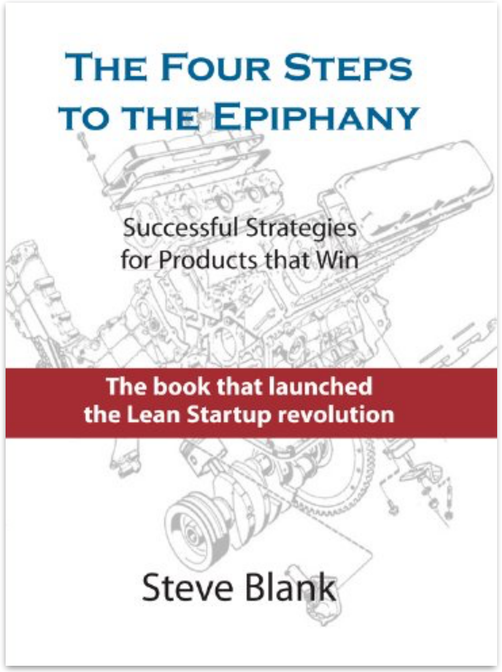

THE ALCHEMY OF GROWTH
Kickstarting and sustaining growth in your company
Mehrdad Baghai • Stephen Coley • David White


You're holding a handbook for visionaries, game changers, and challengers striving to defy outmoded business models and design tomorrow's enterprises. It's a book for the...
Business Model Generation
WRITTEN BY
Alexander Osterwalder & Yves Pigneur
CO-CREATED BY
An amazing crowd of 470 practitioners from 45 countries
DESIGNED BY
Alan Smith, The Movement
Strategyzer Series
WILEY


EXPANDED EDITION OF THE INTERNATIONAL BESTSELLER
OVER 3.5 MILLION COPIES SOLD
BLUE OCEAN STRATEGY
How to Create Uncontested Market Space and Make the Competition Irrelevant
W. CHAN KIM | RENÉE MAUBORGNE
HARVARD BUSINESS REVIEW PRESS


THE LEAN STARTUP SERIES
2nd Edition
Ash Maurya
RUNNING LEAN
Iterate from Plan A to a Plan That Works
O'REILLY
Eric Ries, Series Editor


THE LEAN STARTUP
How Constant Innovation Creates Radically Successful Businesses
ERIC RIES
'Mandatory reading for entrepreneurs' Dan Heath


THE FOUR STEPS TO THE EPIPHANY
Successful Strategies for Products that Win
The book that launched the Lean Startup revolution
Steve Blank

How To Start A Startup (Stanford Course: CS183B)

Michael Babich • 20 videos • 97,620 views • Last updated on 9 Jun 2015

Sam Altman and the folks from Y Combinator offer up an amazing course in "How To Start A Startup" at Stanford. Course includes lectures from: Sam Altman, Dustin Moskovitz, Paul Graham, Adora Cheung, Peter Thiel, Alex Schultz, Kevin Hale,... more

Play all | Share | Save

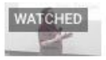
1	WATCHED	Lecture 1 - How to Start a Startup (Sam Altman, Dustin Moskovitz) by How to Start a Startup	43:53
2	WATCHED	Lecture 2 - Team and Execution (Sam Altman) by How to Start a Startup	46:19
3	WATCHED	Lecture 3 - Before the Startup (Paul Graham) by How to Start a Startup	48:08
4	WATCHED	Lecture 4 - Building Product, Talking to Users, and Growing (Adora Cheung) by How to Start a Startup	52:22
5	WATCHED	Lecture 5 - Competition is for Losers (Peter Thiel) by How to Start a Startup	50:17
6	WATCHED	Lecture 6 - Growth (Alex Schultz) by How to Start a Startup	47:28
7	WATCHED	Lecture 7 - How to Build Products Users Love (Kevin Hale) by How to Start a Startup	48:02
8	WATCHED	Lecture 8 - How to Get Started, Doing Things that Don't Scale, Press by How to Start a Startup	52:14
9	WATCHED	Lecture 9 - How to Raise Money (Marc Andreessen, Ron Conway, Parker Conrad) by How to Start a Startup	50:11
10	WATCHED	Lecture 10 - Culture (Brian Chesky, Alfred Lin) by How to Start a Startup	50:26

Technology-enabled Blitzscaling

Greylock Partners • 20 videos • 49,744 views • Last updated on 7 Dec 2015

Class recordings from Stanford CS183C: Technology-enabled Blitzscaling.

Play all | Share | Save

1		Blitzscaling 01: Overview of the Five Stages of Blitzscaling by Greylock Partners	1:12:51
2		Blitzscaling 02: Sam Altman on Y Combinator and What Makes The Best Founders by Greylock Partners	1:12:26
3		Blitzscaling 03: Michael Dearing on Capitalism, Creativity, and Creative Destruction by Greylock Partners	1:19:36
4		Blitzscaling 04: Ann Miura-Ko on FLOODGATE's Thunder Lizard Theory and Achieving Product Market Fit by Greylock Partners	1:12:37
5		Blitzscaling 05: John Lilly on Leveraging Community to Scale Mozilla by Greylock Partners	1:14:36
6		Blitzscaling 06: Jennifer Pahlka on Founding Code For America and Starting the US Digital Service by Greylock Partners	1:02:18
7		Blitzscaling 07: Mariam Naficy on Lessons From The Dot Com Days and Knowing When To Blitzscale by Greylock Partners	1:12:43
8		Blitzscaling 08: Eric Schmidt on Structuring Teams and Scaling Google by Greylock Partners	1:22:39
9		Blitzscaling 09: Reid Hoffman and Allen Blue on Why and How They Scaled LinkedIn by Greylock Partners	1:20:13
10		Blitzscaling 10: Selina Tobaccowala on Building a Global Business at SurveyMonkey by Greylock Partners	1:21:53
		Blitzscaling 11: Patrick Collison on Hiring at Stripe and the Role of a Product-Focused CEO	1:19:12

ideas to take to heart

Business is about the people

Trust networks are real and important

The job of an entrepreneur is to reduce risk by reducing uncertainty
- that is risk and uncertainty in a business

1. So you've got an idea...

Introduction

Why are you doing it?

What is it? defining the product or service; types of company

Who needs it? an introduction to market analysis

How? Writing the business plan

Futures: some emerging areas for new computer businesses

One of you will become a Billionaire

- Most will be millionaires
  - And need to be
    - Pension issue
      - Say household income of £50K @ 4% -> £1.25M
      - Inflation for 40 year @ 3% -> x 3 -> £3.75M
      - House, etc say £250K -> 750K
      - Total £4.5M
- You won't save £4.5M from a salary
  - Trading
  - Starting an Enterprise

Why?

Why now?

- Because I can: available time and resource
- Just graduated, or made redundant and nothing else to do
- Brilliant idea or market opportunity

Why me?

- Barriers to market entry
  - What have you got to make it through?
    - Expertise, resource, relationships
- Barriers to competition
  - What stops others doing the same thing
    - IPR, network effect, niche
- Unique advantages

Know yourself

- Know your motivation so you can motivate others
  - What counts as success?

Never a better time to start than NOW

- Money
  - Cambridge Angels, Cambridge Capital….
- Support
  - St Johns, Cambridge Enterprise….
- Infrastructure
  - Banks, lawyers, accountants
  - Office space
- People
  - Cambridge Network, mentors…
- Government
  - EIS Tax relief, TSB Awards, SFLGS/ Enterprise Finance Guarantee….
  - Princes Trust
- Society attitude
  - OK to lose,
    - "Better to have loved and lost than never loved at all"
- "Dare to Begin" (Horace)
  - Nothing will be attempted if all possible objections must be overcome (Samuel Johnson)

Why are you doing it?

- Wealth generation
  - You need £5M by the time you retire, for a modest lifestyle
- Better toys
- Make a difference
  - Social consequences
    - Generation of employment
    - Death of the nation state
- Fun or profit?
  - Lifestyle or high growth?
    - Funding
    - Eventual size?

An Entrepreneur is…

- Someone who starts a project without having the full resources or knowledge
  - Estimate, guess and gut feel
  - Risk taking
    - Market risk
    - Technology risk
    - Financial risk
- Value accrues as risk lessens
  - Guesses replaced by justified facts
  - As development progresses and market established
  - Transition from intangible hopes to reality and cash-flow
  - Risk lessens, hence value increases

Example

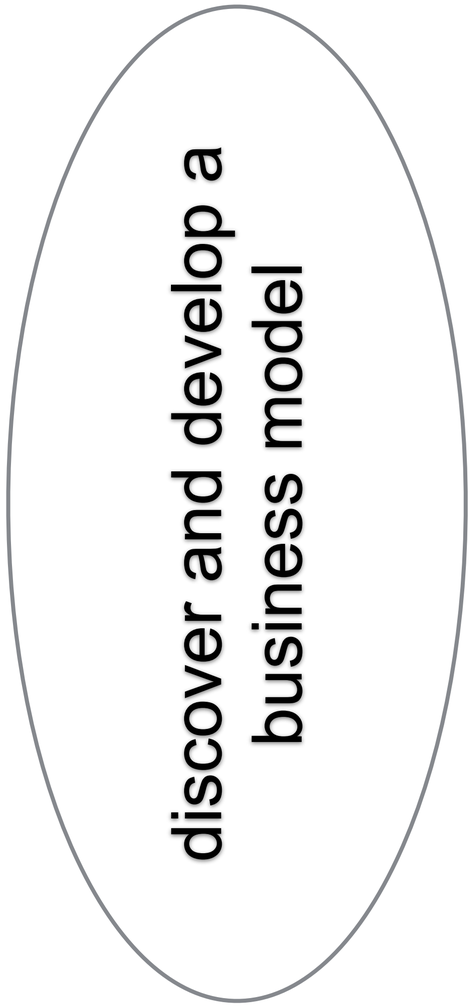
- (Almost) Risk Free return, eg Bank:
  - say 5% or P/E 20
  - after 1 year 100 ->105
- Invest in companies, say 30% chance of failure:
  - After 1 year average return is 0.7*(100+x) where x is the IRR
  - For equivalent return 0.7(100+x) = 105
  - x=50%

Your job as an entrepreneur is to discover and build a business (& sell it)

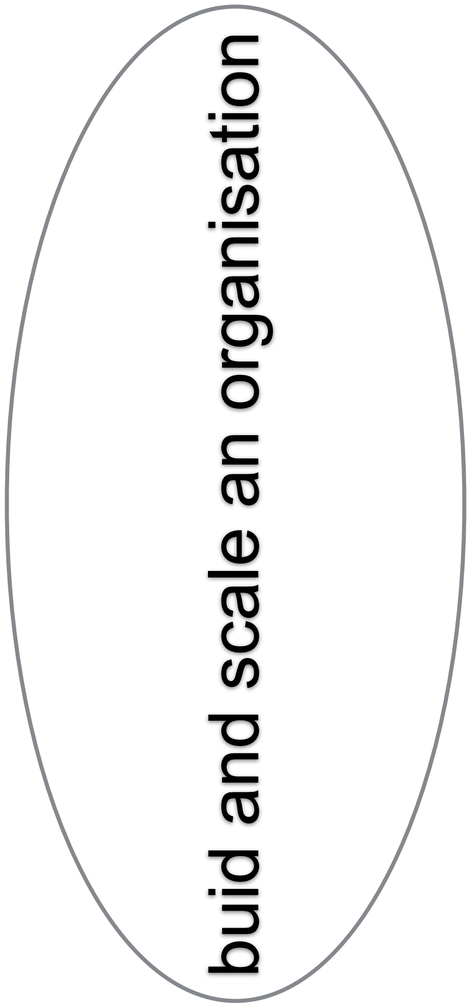
invention

individual experience

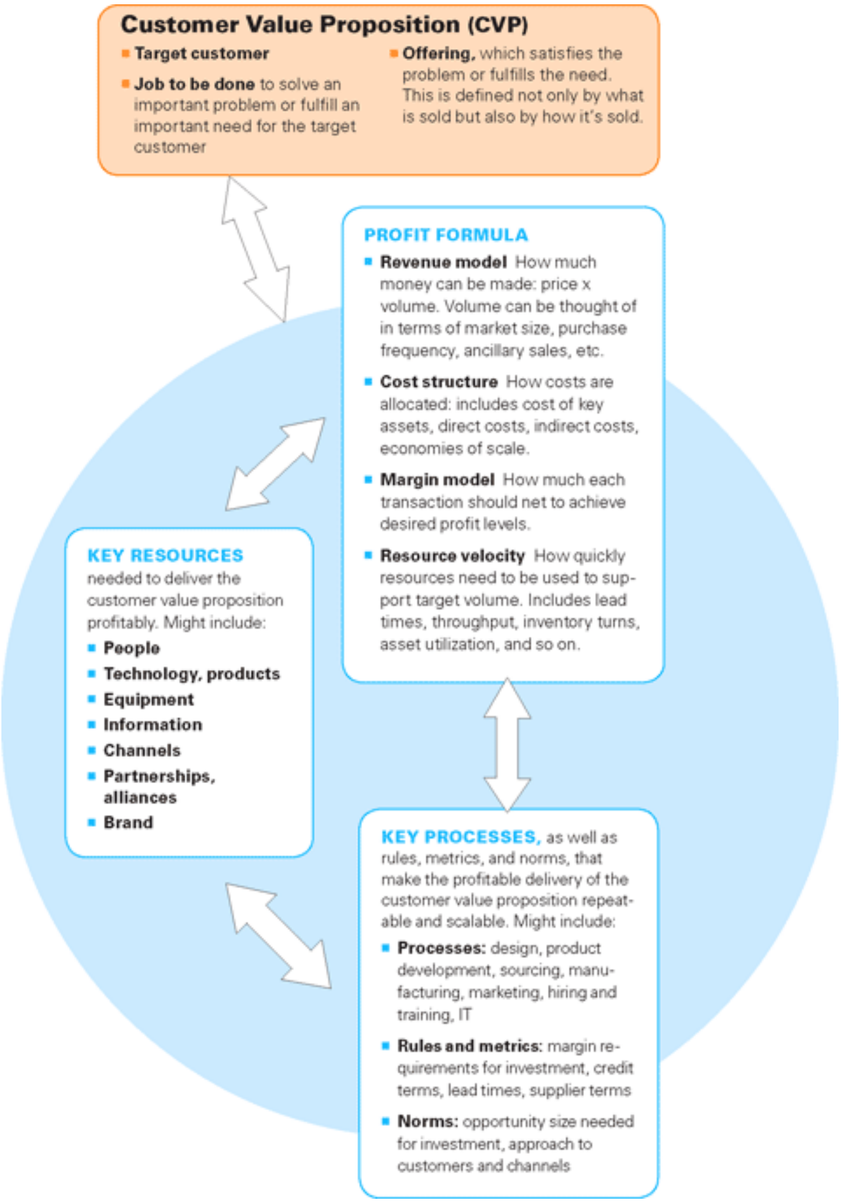
insight



founder



startup CEO



Christensen et al., Harvard Business Review Dec 2008

The Business Model Canvas

Designed for:	Designed by:	Date:	Version:

Key Partners

Who are our Key Partners?
Who are our key suppliers?
Which Key Resources are we acquiring from partners?
Which Key Activities do partners perform?

MOTIVATIONS FOR PARTNERSHIPS
Optimization and economy
Reduction of risk and uncertainty
Acquisition of particular resources and activities

Key Activities

What Key Activities do our Value Propositions require?
Our Distribution Channels?
Customer Relationships?
Revenue Streams?

CATEGORIES
Production
Problem Solving
Platform/Network

Key Resources

What Key Resources do our Value Propositions require?
Our Distribution Channels? Customer Relationships?
Revenue Streams?

TYPES OF RESOURCES
Physical
Intellectual (brand patents, copyrights, data)
Human
Financial

Value Propositions

What value do we deliver to the customer?
Which one of our customer's problems are we helping to solve?
What bundles of products and services are we offering to each Customer Segment?
Which customer needs are we satisfying?

CHARACTERISTICS
Newness
Performance
Customization
"Getting the Job Done"
Design
Brand/Status
Price
Cost Reduction
Risk Reduction
Accessibility
Convenience/Usability

Customer Relationships

What type of relationship does each of our Customer Segments expect us to establish and maintain with them?
Which ones have we established?
How are they integrated with the rest of our business model?
How costly are they?

EXAMPLES
Personal assistance
Dedicated Personal Assistance
Self-Service
Automated Services
Communities
Co-creation

Channels

Through which Channels do our Customer Segments want to be reached?
How are we reaching them now?
How are our Channels integrated?
Which ones work best?
Which ones are most cost-efficient?
How are we integrating them with customer routines?

CHANNEL PHASES
1. Awareness
   How do we raise awareness about our company's products and services?
2. Evaluation
   How do we help customers evaluate our organization's value Proposition?
3. Purchase
   How do we allow customers to purchase specific products and services?
4. Delivery
   How do we deliver a Value Proposition to customers?
5. After sales
   How do we provide post-purchase customer support?

Customer Segments

For whom are we creating value?
Who are our most important customers?

Mass Market
Niche Market
Segmented
Diversified
Multi-sided Platform

Cost Structure

What are the most important costs inherent in our business model?
Which Key Resources are most expensive?
Which Key Activities are most expensive?

IS YOUR BUSINESS MORE?
Cost Driven (leanest cost structure, low price value proposition, maximum automation, extensive outsourcing)
Value Driven (focused on value creation, premium value proposition)

SAMPLE CHARACTERISTICS
Fixed Costs (salaries, rents, utilities)
Variable costs
Economies of scale
Economies of scope

Revenue Streams

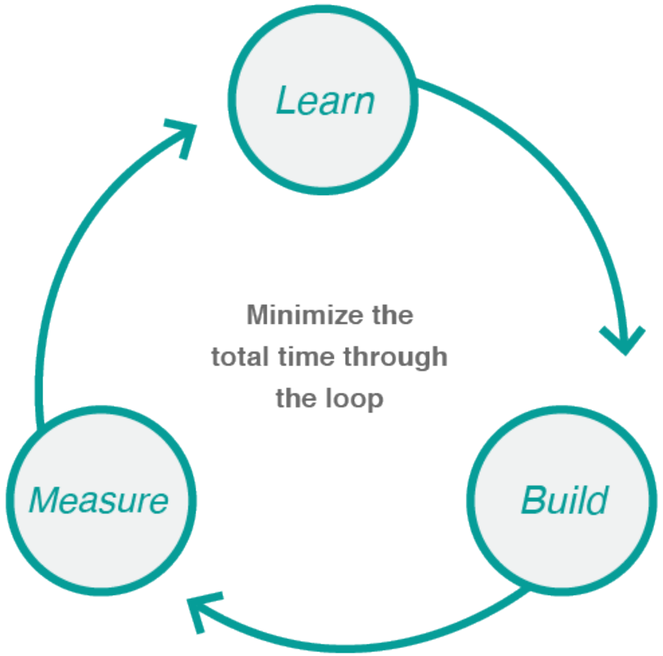
For what value are our customers really willing to pay?
For what do they currently pay?
How are they currently paying?
How would they prefer to pay?
How much does each Revenue Stream contribute to overall revenues?

TYPES
Asset sale
Usage fee
Subscription Fees
Lending/Renting/Leasing
Licensing
Brokerage fees
Advertising

FIXED PRICING
List Price
Product feature dependent
Customer segment dependent
Volume dependent

DYNAMIC PRICING
Negotiation (bargaining)
Yield Management
Real-time-Market

Strategyzer
strategyzer.com



The Business Model Canvas

Designed for:	Designed by:	Date:	Version:

Key Partners

Who are our Key Partners?
Who are our key suppliers?
Which Key Resources are we acquiring from partners?
Which Key Activities do partners perform?

MOTIVATIONS FOR PARTNERSHIPS:
Optimization and economy
Reduction of risk and uncertainty
Acquisition of particular resources and activities

Key Activities

What Key Activities do our Value Propositions require?
Our Distribution Channels?
Customer Relationships?
Revenue streams?

CATEGORIES
Production
Problem Solving
Platform/Network

Key Resources

What Key Resources do our Value Propositions require?
Our Distribution Channels? Customer Relationships?
Revenue Streams?

TYPES OF RESOURCES
Physical
Intellectual (brand patents, copyrights, data)
Human
Financial

Value Propositions

What value do we deliver to the customer?
Which one of our customer's problems are we helping to solve?
What bundles of products and services are we offering to each Customer Segment?
Which customer needs are we satisfying?

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Volume dependent

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Yield Management
Real-time-Market

Strategyzer
strategyzer.com

High Profit vs High Growth

- High Profit
- Lifestyle
  - Restaurant/shop
- P&L
- Organic Growth
  - 20 years

- Debt finance

- High Growth
- Sell the Company
  - Chain of Restaurants/shops
- Balance Sheet
- Investment
  - Exit route
  - 5 years
- Equity
- BUT
  - Fairy Godmothers now extinct
  - Raise enough cash to get to get to profitability and survive

Investor Criteria for a business

Market	Global sustainable under-served market need
Technical	Defensible technological advantage
People	Strong team
Financial	Believable plans, 60% IRR
Major Risks	Framework to understand and manage. What do you know? What do you know you don’t know? How will you discover the things you don’t know you don’t know?

Market Need

- Largest risk factor: everything else is process or resource
- Who needs it?
    - Why?

    Why do they need yours??
        - What are they doing now?
        - How much is it worth to them?
    - How is it sold, or advertised?
        - Routes to market
        - Alliances
        - Branding
  - Under served need
    - Competition
    - What other solutions?
  - Sustainable or one-shot wonder?
  - Growing market
    - Global potential

Global

Sustainable

Under-Served

Market Need

Job to be Done

https://blog.intercom.com/when-personas-fail-you/

Market - who loves ya?

it's FAB because

Feature - techie speak
this chip uses a double super helical fooglefarg

Advantages - the translation step
it uses less power, gives you more speed

Benefits - customer speak
it is cheaper, smaller, works better in marginal conditions, batteries last longer

because *your friends will be envious*
why people really buy it

Defensible advantage

Exclude competition

Outcompete

Intellectual Property
Asset monopoly
Network effect
Scale faster
Company culture

Defensible technological advantage

- IPR
  - Patent
  - Copyright
  - Trademark
- Defensible technological leadership
  - against well-funded competition
  - Niche Market share

Strong management team

- You can’t do it all by yourself
  - “Small” project >10 person-year
  - Team building
  - 1:3:10 rule
- Alliances
- Recruit experience
  - Financial Director
  - Sales & Marketing
- Training & experience
  - M erchant bank/Management Consultancy
  - MBA

Senior Team

US	*UK*	
Chair	**Chair**	**Senior figure; Old wise head** **Experience and contacts; Major dispute resolution; part-time**
CEO	**Managing Director**	**Finding money; Investor relations; Style setting; Keeping the peace**
CFO	**Finance Director**	**Accounts etc. Office management; Administration, Legals, Quality control**
CTO	**Technical Director**	**Inventing new things; development**
COO	**Production Director**	**Running the factory and distribution**
VP Marketing	**Marketing Director**	**Deciding what and how to sell; pricing Marcoms; Market information**
VP Sales	**Sales Director**	**Selling; CRM;**

You

Believable Plans

- Business Plan
- Development Plan
- Marketing plan
  - Adverts, mail shots, web-sites
- Sales Plans
  - Distribution, Direct Sales
- Quality Plans
- Financial Projections
  - Budget
    - 60% IRR
      - Pay back financing in third year
  - Cash flow

How? Writing the business plan

Business plan describes what you want to do

BVCA Handbook

KISS

Write for the target audience

Business Plan Competitions

Cambridge £100, £1k and £5k

Cambridge University Entrepreneurs (CUE)

www.cue.org.uk


CAN YOU GIVE ME SOME COMMENTS ON MY BUSINESS PLAN?
SURE.
www.dilbert.com scottadams@aol.com
YOUR PLAN IS A HODGE-PODGE OF UNWARRANTED OPTIMISM ENCASED IN AN IMPENETRABLE FORTRESS OF BUZZ-WORDS.
10-25-08 ©2008 Scott Adams, Inc./Dist. by UFS, Inc.
WOULD YOU LIKE TO READ IT?
THERE'S THAT UN-WARRANTED OPTIMISM AGAIN.

Writing the Business Plan

Executive Summary and funding requirement

1. Concept
2. The Market
    - 3.1 Global market size and need
    - 3.2 Sustainability
    - 3.3 Competition
    - 3.4 Marketing plans
4. The Team
    - 4.1 CEO
    - 4.2 CTO
    - 4.3 CFO
    - 4.4 VP Sales and Marketing

Writing the Plan - 2

5. The technology and its IPR
6. Summary of plans
    - 6.1 Development plans
        - 6.1.1 Methodology
        - 6.1.2 Milestones
    - 6.2 Marketing
    - 6.3 Sales and distribution
    - 6.4 Quality and industry standards
7. Financials

Writing the Plan - 3

Appendices:

Financial model

Key staff

Letters of support

Correspondence re IPR

Full development plan

Full marketing and sales plan

Examples and brochures

$$product^{value} > product^{price} > product^{cost}$$

$$customer^{ltv} > customer^{ac} + customer^{rc}$$

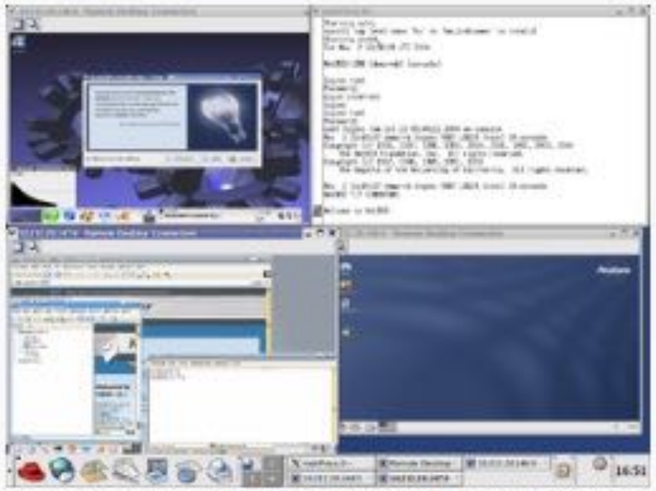
Advanced Systems Topics
Part I of III

Steven Hand

Lent Term 2003

- Part I: Advanced Operating Systems [SMH, 6L]
  - Local & Distributed Virtual Memory
  - Capability Systems and Microkernels
  - Virtual Machine Monitors
  - Extensibile Operating Systems
  - Filesystem & Database Storage

Xen



Xen Project running NetBSD and three Linux distributions

Original author(s)	Keir Fraser, Steven Hand, Ian Pratt, University of Cambridge Computer Laboratory
Developer(s)	Linux Foundation
Initial release	2003
Stable release	4.7[1] / June 23, 2016; 3 months ago
Preview release	4.6.1[2] / February 15, 2016; 8 months ago
Type	Hypervisor
License	GNU GPL version 2
Website	www.xenproject.org

https://en.wikipedia.org/wiki/Xen

Citrix to buy virtualization company XenSource for $500 million

Open-source software company XenSource will be added to Citrix's server management software.

Tech Culture

15 August 2007

7:47 pm BST

by Martin LaMonica

@mlamonica

One day after the spectacular public offering of virtualization company VMware, Citrix Systems on Wednesday said that it intends to acquire open-source virtualization company XenSource for about $500 million.

Citrix makes so-called thin client software that delivers business applications from servers to desktop computers.

By acquiring XenSource, the company intends to move into the adjacent server and desktop virtualization market.

The acquisition will be financed through a combination of stock and cash and includes the assumption of $107 million in a vested stock options.

The company's open-source "hypervisor" software, called Xen, lets a single computer run n

https://www.cnet.com/uk/news/citrix-to-buy-virtualization-company-xensource-for-500-million/

Oxbridge graduates 'earn double £200,000 Russell Group premium'

Graduates of the Universities of Oxford and Cambridge earn £400,000 more over a lifetime than students from non-Russell Group universities

Oxbridge grads earn £400,000 more during their lifetime than peers elsewhere Photo: Alamy

By Josie Gurney-Read, Online Education Editor

12:01AM BST 09 Oct 2015

Graduates from the **Universities of Oxford** and **Cambridge** can expect to earn over £400,000 more during their lifetime than peers in other higher education institutions - double the £200,000 earning premium afforded to other members of the elite Russell Group.

The figures suggest that students at the two ancient institutions will earn an average £1.8 million over a lifetime, compared with £1.39 million earned by those with a non-Russell Group degree.

http://www.telegraph.co.uk/education/universityeducation/11918904/Oxbridge-graduates-earn-double-200000-Russell-Group-premium.html

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Got an idea?

What you need to do if you have an idea but are not sure what to do next.

Read more >

Who does what?

A summary of the activities of the organisations that make up the University Enterprise Network.

Cambridge Cluster

Resources that help explain the origins and growth of the Cambridge Cluster, and to quantify its current performance.

About

This website is for students and staff at the University of Cambridge who are interested in enterprise and innovation. It provides links to the different ways you can get involved in a range of activities at Cambridge, such as learning new skills, attending networking events, getting a job or internship a start-up, starting your own business, or getting the results of your research applied in industry.

This website is managed in partnership with ideaSpace, St John's Innovation Centre and the Institute for Manufacturing.

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Tim Minshall
@Camtechpole

Amazon gives the outside world a first look at its secret delivery drone lab in Cambridge read.bi/2dVbPF6 via @BIUK_Tech

http://www.enterprisenetwork.group.cam.ac.uk

The Grand Launch marks the official **start of the £100 for 100 words competition.** Make sure to submit your competition entries by **November 6, 2016** for your chance to win some cash (Guidelines and more information are available on our website).

http://www.cue.org.uk